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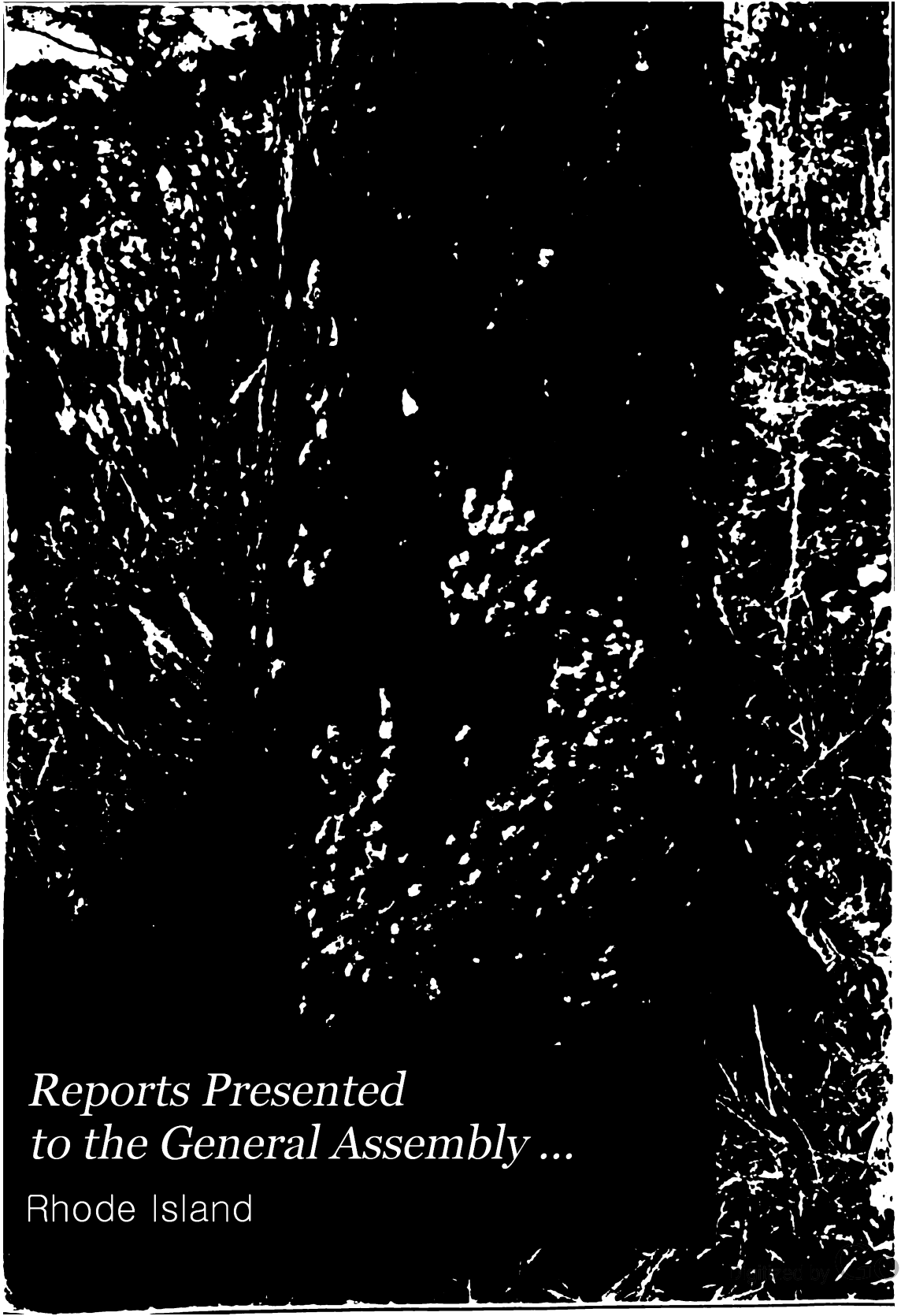

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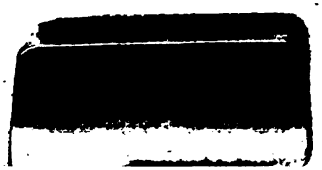

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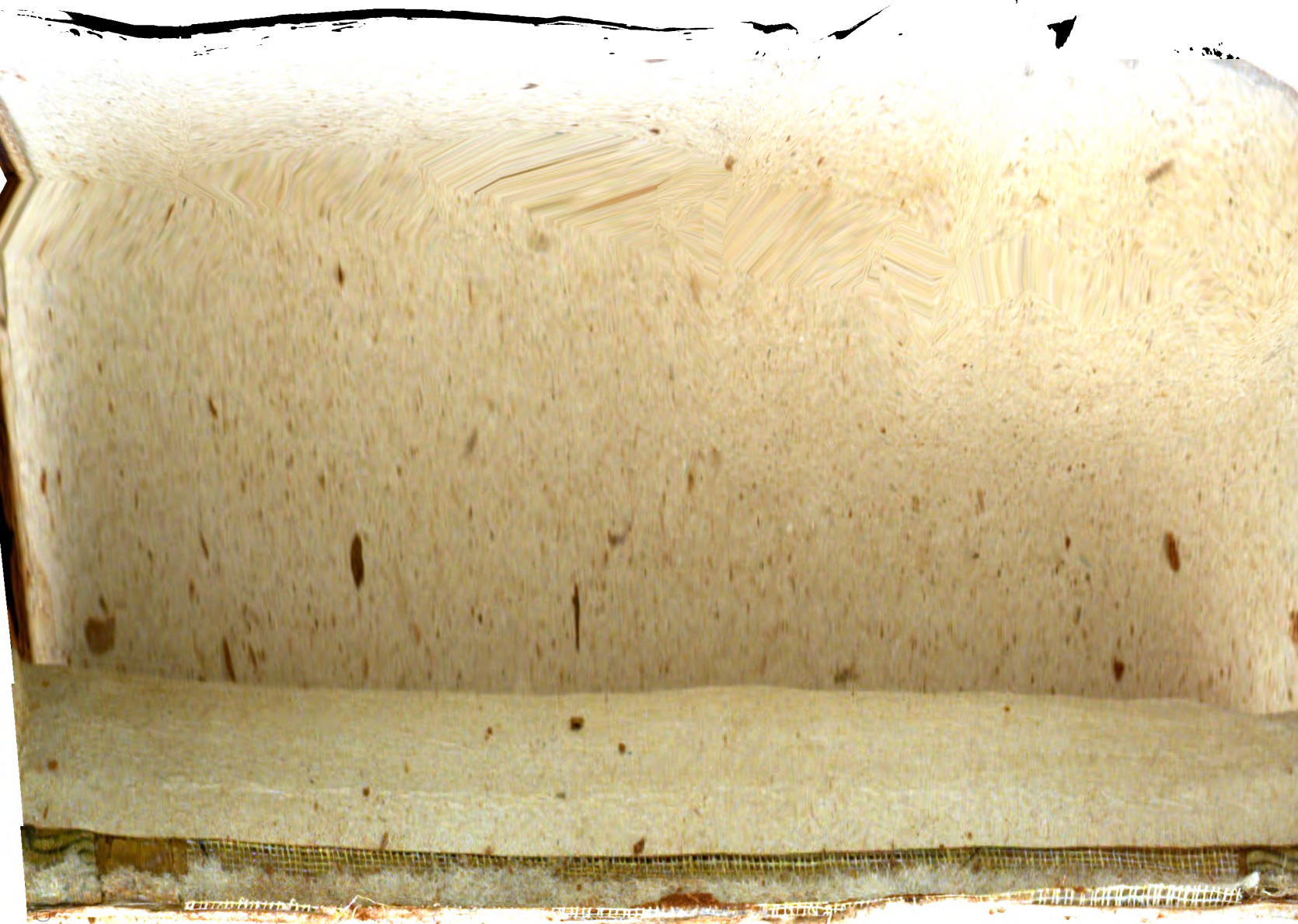
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1907

REPORTS

PRESENTED TO THE

GENERAL ASSEMBLY

OF THE

State of Rhode Island and Providence Plantations.

STATE OF RHODE ISLAND, ETC.,

OFFICE OF THE SECRETARY OF STATE, DECEMBER, 1907.

Dup. U. of C.
Ohio

Exchange Duplicate, L. C.

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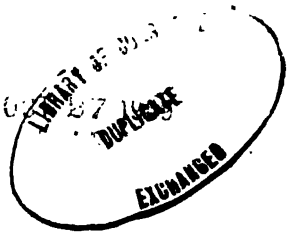

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REPORTS MADE TO THE GENERAL ASSEMBLY DURING THE LEGISLATIVE YEAR A. D. 1907.

JANUARY SESSION.

PART 2.

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PUBLIC DOCUMENT.] APPENDIX. No. 22.

ANNUAL REPORT

OF THE

THIRTY-SIXTH YEAR

OF THE

ADVISORY BOARD OF VISITORS

TO

INSTITUTIONS WHERE WOMEN ARE IMPRISONED,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

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State of Rhode Island.

1906.

ADVISORY BOARD

OF

VISTORS TO INSTITUTIONS WHERE WOMEN ARE IMPRISONED.

Chairman:

MRS. LYDIA KENDALL.

Secretary:

CLARA E. WIGHTMAN.

Members of the Board:

MRS. LYDIA KENDALL.....East Greenwich.
MRS. EDNA A. KILTON.....2090 Broad St., Pawtuxet.
MRS. ELIZA G. M. RADEKE.....92 Prospect St., Providence, R. I.
MRS. ELLEN COTTRELL.....Jamestown, R. I.
MRS. ANNA L. WOLFENDEN.....Apponaug, R. I.
MRS. CLARA E. WIGHTMAN.....37 Woodland Road, Woonsocket.

The regular meetings of the board are held in room twelve, State House, at 10:30 A. M., on the second Tuesday of each month.

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REPORT.

To the Honorable the General Assembly of the State of Rhode Island, at its January Session, A. D. 1907.

The Board of Visitors to Institutions where Women are Imprisoned respectfully presents its report for the year ending January 31st, 1907, as required by Chapter 809, section 52, of the General Laws of Rhode Island.

In carefully renewing the events occurring the past year, we find the meetings have been held regularly, and well attended; much interest manifested in the furtherance of all that tends to the upliftment of those whose welfare is brought to our notice, in every visit made at the Institution. The members have made, in a body, two visits; in all, thirty-two during the year; finding much that is commendable, and a kindly feeling uppermost between superintendent and inmates.

Considering the crowded condition of the buildings, it was surprising to note the general cleanliness and purity of the atmosphere and the systematic arrangement of all departments of labor, from the one who takes charge of the scrubbing to the one who has the care of the inner man.

The smoothness and regularity of all the wheels must be well oiled and properly cared for, or else there would be friction and confusion. "It is harmony that has a rhythm."

As a whole, we have been especially attracted to the Oaklawn school. The need that the Board has keenly felt and expressed, of better accommodations, for the elevation morally of its inmates, will be filled in part by the erection of a new cottage, which we hope in time will be followed by another. The underpinning of this new

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cottage is completed. Plans for the upper floors are ready for use as soon as practicable. They are so complete in every detail, no fault can be found. Besides separate sleeping apartments, so equipped that each girl has her own individual bathing accommodations, a gymnasium, living-room, and a model kitchen are provided. It is believed that this will have a helpful effect on all the girls in the school, as an admission to the new cottage is to be the reward of good conduct on their part. There will be special facilities for teaching cooking and other industries, so that upon leaving the school, the girls will be better fitted to become wage earners. At the present time a new teacher, a graduate from the Boston Cooking School, has inspired new interest in the girls in this special direction. The experiment in dividing the school into two sections has proved a wise one. Better classwork has been accomplished, and more interest has been manifested by the girls, and much more individual attention has been possible. In the early spring Mrs. Radeke, with Mr. Eastman's permission and approval, gave plants and seeds to every girl in the school, and in so doing awakened a larger interest in gardening. Each girl had her own plat of ground, and they surely vied with each other in making beautiful their own special spot. And in August, at their yearly clambake, their gardens were full of bloom and fragrance, adding much glory to the picture made in the arrangement of tables, the neatness of attire of teachers and pupils. The whole formed one vast dining hall, and to add to the joyousness of the occasion, the boys' band discoursed sweet music during the dinner hour. Autumn found the beds a mass of glowing color, and the girls were busied transplanting the plants for the house and caring for the bulbs.

In a visit paid at the House of Correction, in October, the Board was impressed with the idea that some helpful thought at the beginning of each day be given to the inmates, so their thoughts might be lifted above the dull routine of coarse hard labor, something sunshiny and bright to crowd out the dross. At the suggestion of the Advisory

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Board, with the co-operation of Mr. Eastman and the Board of State Charities, the change has been accomplished.

Taking the year as a whole, we think it has been profitable—a larger interest has been shown by the public in our work. The Board feels that the greatest present need is in relieving the overcrowded condition of the Almshouse. We are glad to know an effort is being made to separate the sick from the well. The Board also hopes in the near future that a separate building, with grounds attached sufficient in size for necessary exercises for every inmate, may be provided for the women of the House of Correction.

Money is needed to bring about all desired changes, and if a larger interest could be awakened in the public by bringing them in closer touch with our Institutions, much could be gained for its poor, its unfortunates, and its criminals, and the finest facilities for its growing girls, who need all the help and guidance that kind teachers and matron can provide. And we know it pays to care for even the least of *these*.

Respectfully submitted,

LYDIA K. KENDALL,
EDNA A. KILTON,
ELIZA G. M. RADEKE,
CLARA E. WIGHTMAN,
ANNA L. WOFFENDEN,
ELLEN COTTRELL.

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ANNUAL REPORT

OF THE

LICENSE COMMISSIONERS

OF THE

CITY OF WOONSOCKET,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE, R. I.
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1907.

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REPORT.

OFFICE OF THE LICENSE COMMISSIONERS OF THE CITY OF WOONSOCKET, COUNTY OF PROVIDENCE AND STATE OF RHODE ISLAND.

JANUARY 1st, 1907.

To the Honorable General Assembly of the State of Rhode Island:

We, the License Commissioners in and for the city of Woonsocket, county of Providence, and State of Rhode Island, herewith submit the annual report of said board to the honorable members of the General Assembly, for the license year beginning December 1, A. D. 1905, and ending December 1, A. D. 1906. The total number of licenses granted being 125, five of which are first class, 93 second class, and 27 druggist.

The total sum received for all licenses being $35,025.00, five being in the first class order at $500.00 each, and 90 of the second class order at $350.00 each, and one for six months amounting to $175.00, and two for three months at $87.50 each, and twenty-seven druggist at $25.00 each.

Most respectfully submitted, the names of the licensees, with location and streets, and street numbers, together with the amounts paid into the city treasury, being herewith appended.

ARTHUR C. MILOT,
EUGENE F. HOWLAND,
ZEPHIR SYLVESTRE,
WALTER S. THAYER,
BENJAMIN SAMPSON,

Board of License Commissioners.

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First Class.

Edward Champeau, 33–35 Rathbun street	$500 00
John F. Cunningham, 11–12–13 Monument square	500 00
John F. Donahoe, 12 Arnold street	500 00
Edward Mee & Son, 14–16 Cato, and 26–30 Cherry sts	500 00
Charles H. Stebbins, 15–17 South Main street	500 00

Second Class.

Edward I. Archambeault, 22–24 Arnold and 4 Sayles sts.	$350 00
Victor Bachand, 289 Social street	350 00
Orie D. Banfill, 190–190½ Main street	350 00
Patrick Battel, 69–71 Center street	350 00
Hermenegilde Beauchemin, 93–95 Sayles street	350 00
Edmond Beausoliel, 278–280 Social street	350 00
Leonce Belhumeur, 80 Bernon and 5 Allen streets	350 00
Boylan Bros., 48 Blackstone street	350 00
Joseph Bobalo, 24½–26 Blackstone street	350 00
George Broulliard, 42 Social street	350 00
Michael H. Burns, 29–29½ Cato street	350 00
Bessette & Sylvestre, 314–316–318 Social street	350 00
Henry Beaulieu, 54 Main street	350 00
James M. Callen, 70 North Main street	350 00
Edward Champeau, 33–35 Rathbun street	350 00
Champeau & Fanning, 274–276 Main and 10 Cherry sts	350 00
Octavien M. Chaput, 320–322–324 Social street	350 00
Alfred Cloutier, 2–4 So. Main and 3 Bernon streets	350 00
Calixte Cloutier, 5½–7–7½ Social street	350 00
John J. Coffey, 248 River and 2 Canal streets	350 00
Michael F. Crane, 142–142½ Arnold street	350 00
Patrick Cummings, 33–33½ Cato street	350 00
John F. Cunningham, 11–12–13 Monument square	350 00

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Edward Daigle, 40 Cumberland and 3 Brook streets.....	350 00
Henri H. Desaulniers, 27–29 Arnold street.....	350 00
Pierre Boisvert, 10–14 Main street.....	350 00
Alfred F. Desautel, 7–9 North Main street.....	350 00
John F. Donahoe, 12 Arnold street.....	350 00
James W. Donnelly, 8 Social street.....	350 00
Edward F. Dougherty, Cor. Olo and West—64 West street.	350 00
Joseph Dupre, 7 Cumberland street.....	350 00
Daniel M. Edwards, 296–298–300 Main and 3 Cato streets.	350 00
Christopher W. Fagan, 14–16 North Main and 4 Corey sts.	350 00
Thomas F. Fanning, 292 North Main street.....	350 00
Narcisse Forcier, 137–145–147 Bernon street.....	350 00
Joseph Forcier, 2–6 Cumberland street.....	350 00
Thomas Fox, 224½–226 River street.....	350 00
William Garneau, 326–326½ Clinton street.....	350 00
William Garrahan, 49 River and 30 Sayles streets.....	350 00
Wilfrid M. Gauvreau, 32 Main street.....	350 00
Joseph O. Giguere, 13–13½ Social street.....	350 00
John B. Giguere, 171 High street.....	350 00
Michael Graham, 306 Main street.....	350 00
Felix Hebert, 17–19 Sayles street.....	350 00
John Hanley, 112–112½ Main and 7 Ascension streets....	350 00
Matthew, F. Handley, 56–58 Center street.....	350 00
James H. Higgins, 145–145½ High street.....	350 00
Fergus Kelleher, 19–21 South street.....	350 00
Patrick Kiley, 180 River street.....	350 00
John B. Lambert, 318 Clinton street.....	350 00
Antoina Laplante, 18 Blackstone and 1 Holders lane....	350 00
Arthur Lapierre, 60–64 Rathbun street.....	350 00
Louis Lavallee, 33–35 River street.....	350 00
Norbert Lavallee, 58–60 River and 37 Sayles streets.....	350 00
Patrick Leonard, 143–143½ Arnold street.....	350 00
John F. Letendre, 319 Main street.....	350 00
Pierre Mailloux, 340 Clinton and 43 Cumberland streets.	350 00

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Stanislaus Majewski, 78 North Main street	350 00
Michael H. McManus, 290 Main and 8 Cato streets	350 00
Lawrence McNally, 97–99 Olo street	350 00
Frank McQueeney, 11–13 South street	350 00
Timothy McQueeney, 9 Social street	350 00
Thomas B. McLaughlin, 3 Monument square	350 00
Edward Mee & Son, 14–16 Cato and 26–30 Cherry streets	350 00
John F. Murphy, 188 Arnold and 1 Bently streets	350 00
Henri Martineau, Jr., 30 Rathbun street	350 00
Frank Normand, 19 Cumberland street	350 00
Bernard O'Donnell, 29 Ascension street	350 00
Patrick O'Donnell, 161–163 High street	350 00
Peter F. Owens, 15 North Main street	350 00
Israel Parent, 90–92 Bernon and 9–13 Allen streets	350 00
William Pasternak, 68–70 Main street	350 00
Gilbert Pelland, 4–6 Arnold street	350 00
Joseph Petit, 79–81 Rathbun street	350 00
Thomas Phelan, 54–56 Sayles street	350 00
Henry G. Potvin, 16½–18 Center street	350 00
Thomas Prior, 8 Main street	350 00
Edward J. Purcell, 9 Railroad and 2–6 Cherry streets	350 00
Fred F. Robideau, 24–28 South street	350 00
Michael A. Rourke, 28 Arnold and 5 Sayles streets	350 00
Michael Sharkey, 106 Main and 3–5 Ascension streets	350 00
Charles H. Stebbins, 15–17 South Main street	350 00
Joseph C. Sweeney, 264–266–268 River street	350 00
Joseph Teteault, 6 Monument square	350 00
Troisfontaine & Allard, 107 Rathbun street	350 00
Farrell E. Whalen, 91 Rathbun street	350 00
Woonsocket Hotel, 3 River street	350 00
Thomas Mitchell, 32 Main street	350 00
Thomas Riley, 13 South Main street	350 00
Patrick Scanlon, 51–52 Railroad street	350 00
Simon Benoit, 15½–17 Center street	175 00

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Ovila Bessette, 70 North Main street	87 50
Arsene Therien, 58–60 River and 37 Sayles streets	87 50

DRUGGISTS', FROM DEC. 1ST, 1905, TO MAY 1ST, 1906.

Fred W. Arnold, 229 Bernon street	$25 00
Albert Desrochers, 232 Main street	25 00
Albert Desrochers, 3 Cumberland street	25 00
Henry J. Desrochers, Cor. River and Sayles—53 River st.	25 00
Aime Guertin, 37 Cumberland street	25 00
Frank A. Jackson, 90 Main street	25 00
Robert F. Linton, 4 Monument square	25 00
Robert F. Linton & Co., 187 South Main street	25 00
Joseph C. Maranda, 237 Main street	25 00
John V. O'Connor, 24 Main street	25 00
Frank B. Simmons, 182 Main street	25 00
James A. Staples, 156 Main street	25 00
Rousseau & Brown, Cor. Main and Court streets	25 00

DRUGGISTS', FROM MAY 1ST, 1906, TO MAY 1ST, 1907.

Fred W. Arnold, 229 Bernon street	$25 00
Albert Desrochers, 232 Main street	25 00
Albert Desrochers, 3 Cumberland street	25 00
Aime Guertin, 37 Cumberland street	25 00
Frank A. Jackson, 90 Main street	25 00
Robert F. Linton, 4 Monument square	25 00
Robert F. Linton & Co., 187 South Main street	25 00
Joseph C. Maranda, 237 Main street	25 00
John V. O'Connor, 24 Main street	25 00
Rosseau & Brown, 201 Main, Cor. Court street	25 00
Frank B. Simmons, 182 Main street	25 00
Joseph E. Chenette, 308 Social street	25 00
James A. Staples, 156 Main street	25 00
Henry J. Desrochers, Cor. River and Sayles—53 River st.	25 00

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ANNUAL REPORT

OF THE

LICENSE COMMISSIONERS

OF THE

CITY OF WOONSOCKET,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE, R. I.
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1907.

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REPORT.

To the Honorable the General Assembly of the State of Rhode Island:

In pursuance to chapter 102, section 3, of the General Laws, the Board of License Commissioners of the city of Central Falls make the following report for the year ending December 31, 1906.

Total number of licenses granted, 83; of which 1 is first class, 72 second class, and 10 are druggist's, as follows:

Eugene Sullivan	$277 53
Damasse Chartier	277 53
John P. Sullivan	263 53
Peter Sanna	263 53
William Farron	209 19
Earl Donnelly	209 19
William J. Kelley	163 85
S. T. Dziok	163 85
Henry McCabe	136 68
Jos. A. Hebert	500 00
Jos. A. Hebert	350 00
Edmond Laprade	350 00
William Murray	350 00
S. T. Dziok	350 00
Coutu Brothers	350 00
Clement Jette	350 00
Mortimer Emmett	350 00
Felix Harbeck	350 00

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Victor Fournier.....
Richard Hamel.....
Phillip Legare.....
Gustave Desmarais.....
Joseph A. Major.....
Senechal & Chartier.....
Jos. S. Cormier.....
Damasse Chartier.....
Joseph Messier.....
Patrick Flanagan.....
Alex. Corriveau.....
Wm. J. Logan.....
Thos. F. Coleman.....
Peter Messier.....
John J. Gilbane.....
James Robinson.....
John Walsh.....
Calixte Dufresne.....
Patrick Kelly.....
William Jefferies.....
Farrell Brothers.....
Timothee Blanchette.....
Murdock & Ryan.....
Henry Keegan.....
Ludger Lafond.....
Edward Kearns.....
Thomas Frain.....
Job Tyrell.....
M. F. Tierney.....
Earl Donnelly.....
John H. Quinn.....
Tobias Burke.....
William Ferron.....
Geo. H. Barrett.....

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Celestin Riendeau	350 00
Wm. H. Elderkin	350 00
Patrick F. Maloney	350 00
William J. Kelley	350 00
Patrick J. McArdle	350 00
Desire Marcil	350 00
John Heaney	350 00
John Coughlan	350 00
Henry McCabe	350 00
Thomas Burns	350 00
Leo Beauchemin	350 00
Saba M. Peter	350 00
James Haworth	350 00
Benjamin Pearson	339 00
Jos. O. Gignac	339 00
Alfred St. Onge	339 00
William G. Miller	339 00
Napoleon Trahan	325 00
Henry Trahan	325 00
Louis Z. Normandin	325 00
James P. Welch	325 00
	$24,370 88

Druggists' Licenses.

Theode E. Beland	$25 00
Leon Marmette	25 00
Henry J. Messier	25 00
Henry A. Whitney	25 00
Alex. McGunagle	25 00
F. M. P. de St. Germain	25 00
Edward D. Laforce	25 00

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Fred H. Jones	25 00
Patrick H. Barry	25 00
George H. Bernard	25 00
	$250 00

Most respectfully submitted,

BOARD OF LICENSE COMMISSIONERS,

HENRY F. MARCOUX,

Clerk.

CENTRAL FALLS, R. I., January 9, 1907.

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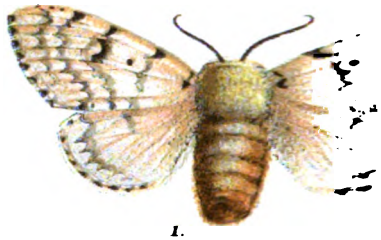

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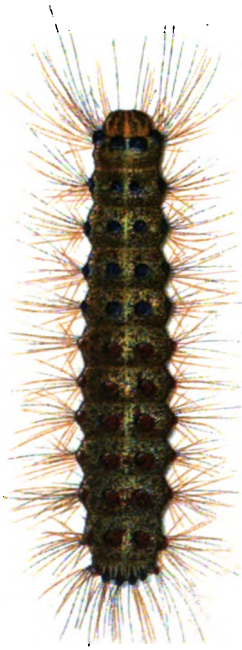

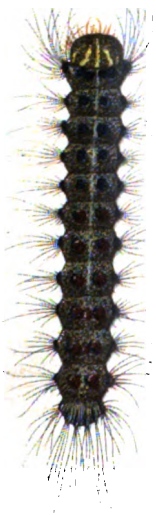

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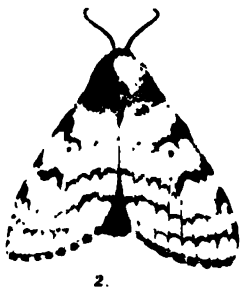
PLATE I



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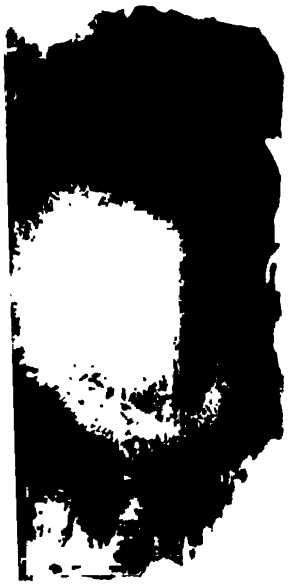

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PUBLIC DOCUMENT.] APPENDIX. No. 25.

REPORT OF THE COMMISSIONER

FOR THE

SUPPRESSION

OF THE

GIPSY AND BROWN-TAIL MOTHS,

Plate I. GIPSY MOTH

Fig. 1, 2, female moths; Fig. 3, 4, male moths; Fig. 5, pupa; Fig. 6, female caterpillar; Fig. 7, male caterpillar; Fig. 8, egg-cluster; Fig. 9, eggs magnified; Fig. 10, egg highly magnified.

After the Mass. Board of Agriculture.

AT ITS

JANUARY SESSION, 1907.

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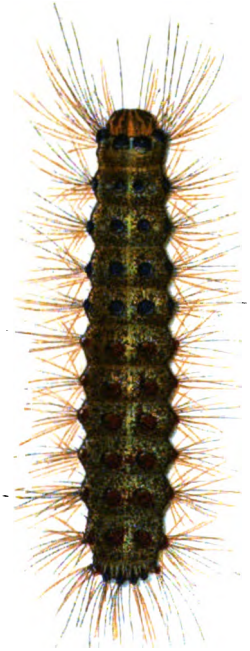

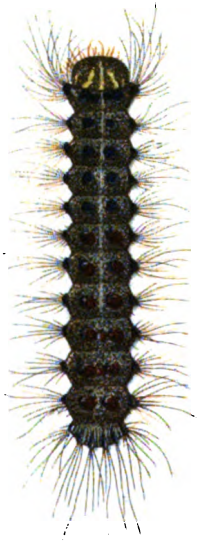
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GYPSY MOTH

REPORT OF THE COMMISSIONER

FOR THE

SUPPRESSION

OF THE

GYPSY AND BROWN-TAIL MOTHS,

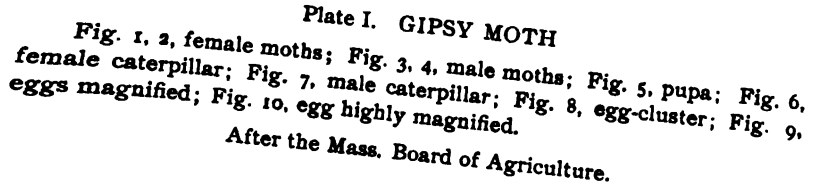

Plate I. GIPSY MOTH

Fig. 1, 2, female moths; Fig. 3, 4, male moths; Fig. 5, pupa; Fig. 6, female caterpillar; Fig. 7, male caterpillar; Fig. 8, egg-cluster; Fig. 9, eggs magnified; Fig. 10, egg highly magnified.

After the Mass. Board of Agriculture.

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE:
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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To the Honorable General Assembly of the State of Rhode Island and Providence Plantations at its January Session, 1907:

In compliance with the directions of a resolution passed by the General Assembly at its January session, 1906, and making appropriations for the suppression and extermination of the gypsy and brown-tail moths, I have the honor to submit herewith the report of my work as Commissioner, appointed under the provisions of this resolution.

A. E. Stene.

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1. Map of New England, showing infested district.
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3. Map showing infested district near Stonington, Connecticut.

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STATE OF RHODE ISLAND.

IN GENERAL ASSEMBLY,

January Session, A. D. 1906.

RESOLUTION

MAKING AN APPROPRIATION FOR THE SUPPRESSION AND EXTERMINATION OF THE GYPSY AND BROWN-TAIL MOTHS.

Resolved, That the sum of fifty-one hundred dollars or so much thereof as may be necessary be and the same is hereby appropriated, out of any money in the treasury not otherwise appropriated, to be used for the purpose of suppressing and exterminating the gypsy and brown-tail moths in this state; and

Resolved, That the governor be and he is hereby authorized to appoint some experienced citizen of this state a commissioner, who shall serve without pay excepting for actual and necessary expenses while carrying out the provisions of this resolution, whose duty it shall be to see that the said fifty-one hundred dollars is properly and judiciously used in the suppression and extermination of the gypsy and brown-tail moths; and the state auditor is hereby authorized to draw his orders on the general treasurer for the above sum of fifty-one hundred dollars, or so much thereof as may be needed, upon the presentation of properly authenticated vouchers. Said commissioner and persons in his employ may at all proper times enter upon any land of the state or of a municipality, corporation, or other owner or owners, and may use all reasonable means in carrying out the provisions of this resolution:

Provided, however, that no part of this money shall be paid without the approval of the governor who on examination shall be satisfied that the appropriation has been properly used before signing the vouchers; and said commissioner is hereby directed to make a full report of his doings to the next January session of the general assembly.

STATE OF RHODE ISLAND.

OFFICE OF THE SECRETARY OF STATE,

PROVIDENCE, April 30, 1906.

I certify the foregoing to be a true copy of the resolution passed by the General Assembly of said State on the 20th day of April, A. D. 1906.

In testimony whereof I have hereunto set my hand and affixed the seal of the State aforesaid the date and year first written above.

CHARLES P. BENNETT,

Secretary of State.

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January Session, A. D. 1906.

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...LES P. BENNETT,

Secretary of State.

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PLATE II.

Menotomy Rocks Park, Arlington, Mass., June, 1905. Defoliated by the gypsy moth caterpillar. After Kirkland.

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PREFACE.

It is intended in this report to give a short historic account of the gypsy and brown-tail moths and their occurrence in this country, together with a description and life history of both insects. A detailed account of methods of work employed and the various expenditures will also be given. It is thought best that this report should go quite fully into details, so that the citizens of the State may have a fairly complete understanding of the problem at hand and the various methods used in dealing with the pests. This seems quite essential in order that the many of our private citizens who realize the great menace of the presence of these pests, and who individually wish to do all in their power to help in exterminating or suppressing them, may have an intelligent understanding of their nature and of the methods of procedure against them.

According to the resolution the Commissioner is responsible to the Governor of the State for the proper execution of his work, and it is with sincere respect that the writer acknowledges the generous encouragement which His Excellency, Governor Utter, has at all times given to the work, and the plain, straightforward manner in which he has given his counsel regarding such questions as came to him for attention and decision.

The writer is under great obligations to the Board of Managers of the Rhode Island College and to Presidents Butterfield and Edwards for every encouragement in the prosecution of this work. To Dr. Wheeler, director of the Rhode Island Experiment Station, is due sincere acknowledgment for suggestions as to plans for the campaign. To him also is no doubt due the credit of having put forth the greatest efforts toward creating a public sentiment favorable to an appropriation in this State, and of having done much effective

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work in helping to secure the national appropriations in Congress.

Many other citizens have manifested constant and lively interest in the work and have aided in every way possible. Notable among these are Messrs. E. A. Noyes, President of the League of Improvement Societies in Rhode Island; Alfred Stone of the Board of Metropolitan Park Commissioners; Prof. John Barlow of the R. I. College of Agriculture and Mechanic Arts; and C. A. Davis, Curator of the Roger Williams Park Museum.

To the newspapers of the State is due the credit of having been ready to publish at any time plain statements of facts regarding the work, and items of interest intended to explain the methods of work and how best the citizens could help.

The success of work like that discussed in this report depends ultimately, to a very great extent, upon the thoroughness and conscientiousness with which the orders are carried out by the men in the field, and it is a pleasure to acknowledge the excellent and faithful service of the field agent, Mr. John Sweeney, and the inspectors and men who have labored under him.

And finally, to the great body of citizens of the State is due acknowledgment for kindly and active interest in the campaign against the pests. There seems to be a general appreciation throughout the whole State that the gypsy moth is an injurious insect of more than common importance and that it behooves everyone to do his share in helping to eradicate the pest. There has also been an entire absence of that undesirable attitude, so loudly complained of in public life to-day, which fails to support or seeks to hinder the administration of public appropriations according to the plain duties in the case and the honest convictions of those in charge, unless there is some "extra money" or unnecessary patronage in it for somebody.

Outside the State, the writer is under great obligations to Supt. A. H. Kirkland of the Massachusetts gypsy moth work, and to Mr. D. M. Rogers now in charge of the Federal work in New England, for the unfailing courtesy and ready willingness to help in our work in this State. Much correspondence and many conferences have been

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had with both of these gentlemen to discuss plans for the work, and they have given freely of their time and of their fund of experience gained in more than a decade of stubborn fighting of the gypsy and brown-tail moths in Massachusetts.

There are many others who could readily be mentioned as having contributed in various ways toward the success of this work, but as the preface is already quite lengthy, further acknowledgments will be given whenever possible in the body of the report.

The writer now begs to present a more or less personal statement in order that his relation, as well as the relation of the Rhode Island College, a member of whose faculty he has the honor to be, to the work may be a little more clearly understood. It is the modern conception of agricultural colleges, and especially those that have established extension departments, that they should seek to promote the agricultural interests and welfare of their respective states in so far as it lies within their power. Not the least of this work in Rhode Island has consisted in the dissemination of knowledge regarding plant pests of various kinds. The Rhode Island College of Agriculture has been fully aware of the presence of the gypsy moth, and it was President Butterfield's instruction, at the very beginning of the writer's work in the extension department, to do everything possible toward fighting the pest. Unfortunately no funds were available for any active work and all that could be done was to visit the infested region, watch the spread of the insect, and seek to enlighten the public in regard to its dangerous character. Numerous visits were made to the infested region, at the request of residents, for the purpose of determining whether the pest was present on their grounds, and information was given orally and by letter of the best way of dealing with it if found.

It was a surprise to the writer when the appointment as Commissioner came, but as it was clearly in the line of duties of an agricultural college, not only according to the principle of service already mentioned, but also from the precedent established in many other states when similar work has been undertaken, the task was ac-

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cepted. It has had its drawbacks and its recompense. It has imposed a great deal of additional care and labor for which no remuneration could be expected; and yet as it has been in line with the writer's only hobby, if it may be so called, of plant-pest study, the work has grown in interest as its various problems have presented themselves.

Only a beginning has been made, and whether the State will deem the recommendation to continue the fight worthy of approval, and whether, if an appropriation is made, his past record will justify that he be delegated to continue the work, the writer will always have a deep interest in the grave agricultural and economic problem which the importation of this insect has forced upon New England, and, unless it is checked in its present range, upon the whole country.

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*HISTORY OF THE INTRODUCTION OF THE GYPSY MOTH INTO THE UNITED STATES.

The history of the introduction of the moth is quite well known to those who have been interested in the fight that Massachusetts has been making against the pest. To many of the people of Rhode Island, however, who have not until recently realized that this State may have to face a similar problem before so very long, the history is probably not so well known. It is, therefore, desirable that a short account should be given, in this report, of the time and manner in which this pest was introduced.

The exact time of the introduction of the gypsy moth has not been determined, but it is known that Mr. Leopold Trouvelot, a Frenchman who was employed as an instructor in astronomy at Harvard, and who was also somewhat of a naturalist, imported, sometime during 1868 or 1869, a number of egg clusters of this insect. His object in so doing was to attempt the breeding of a hardy silkworm. It is well known that the common silkworm is subject to a great many diseases and that, therefore, it is rather difficult to rear. The so-called "American silkworm" is also subject to a great many parasitic enemies. What Mr. Trouvelot's plans were for attaining his purpose is not exactly known, but it is supposed that he intended to make an attempt, by crossing, to produce a new and hardy insect, either from the common silkworm or from the American form, and that for this purpose he imported the gypsy moth. There is no doubt that he selected the gypsy moth for this purpose because of its well-known hardiness in its native habitat.

* Historical data for this account has been obtained largely from the reports of the Mass. work against the gypsy moth.

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It is not necessary to dwell upon the fact that so far as hardiness is concerned the insect was well chosen for the object he had in view. New England people of to-day fully realize that the gypsy moth is extremely hardy and subject to but few parasitic enemies, and that were it really useful as a silk-producing insect or otherwise, it might be a great source of income to the section of the country in which it is found.

At the time that Trouvelot was doing this work he lived at No. 27 Myrtle street, Glenwood, Medford. It is known that he was fully aware of the destructive nature of the insect which he had imported, and that he sought to keep it confined. By some accident the insect escaped; just how is not absolutely known, as he had returned to France before the people actually began to realize the dangerous character of the insect. He announced the escape in a number of entomological papers and called attention to the fact that efforts should be made to destroy the insect at once. A few of the entomologists of the country, notably C. V. Riley, then State Entomologist of Missouri, recorded the appearance of the insect in this country in 1870 and stated that it was a very destructive pest in its native habitat. People generally, however, paid no attention to the presence of the insect, and it seems to have been forgotten almost entirely until about 1889, when the caterpillars became so numerous that specimens of the insect were sent to Dr. Fernald, Entomologist of the Massachusetts Agricultural College, for identification. Dr. Fernald was absent at the time, but his wife, who is also an entomologist, traced the insect in the entomological literature and found it to be the gypsy moth so well known in Europe.

During the twenty years which had elapsed since its introduction the insect had been slowly increasing and spreading from the district in Medford where it was first introduced. It had been found in certain localities in destructive numbers, but people generally had fought it without any definite idea of what kind of an insect it was, speaking of its larvæ as the "caterpillars" or "worms." It was taken by some to be the Army worm, outbreaks of which occur from time

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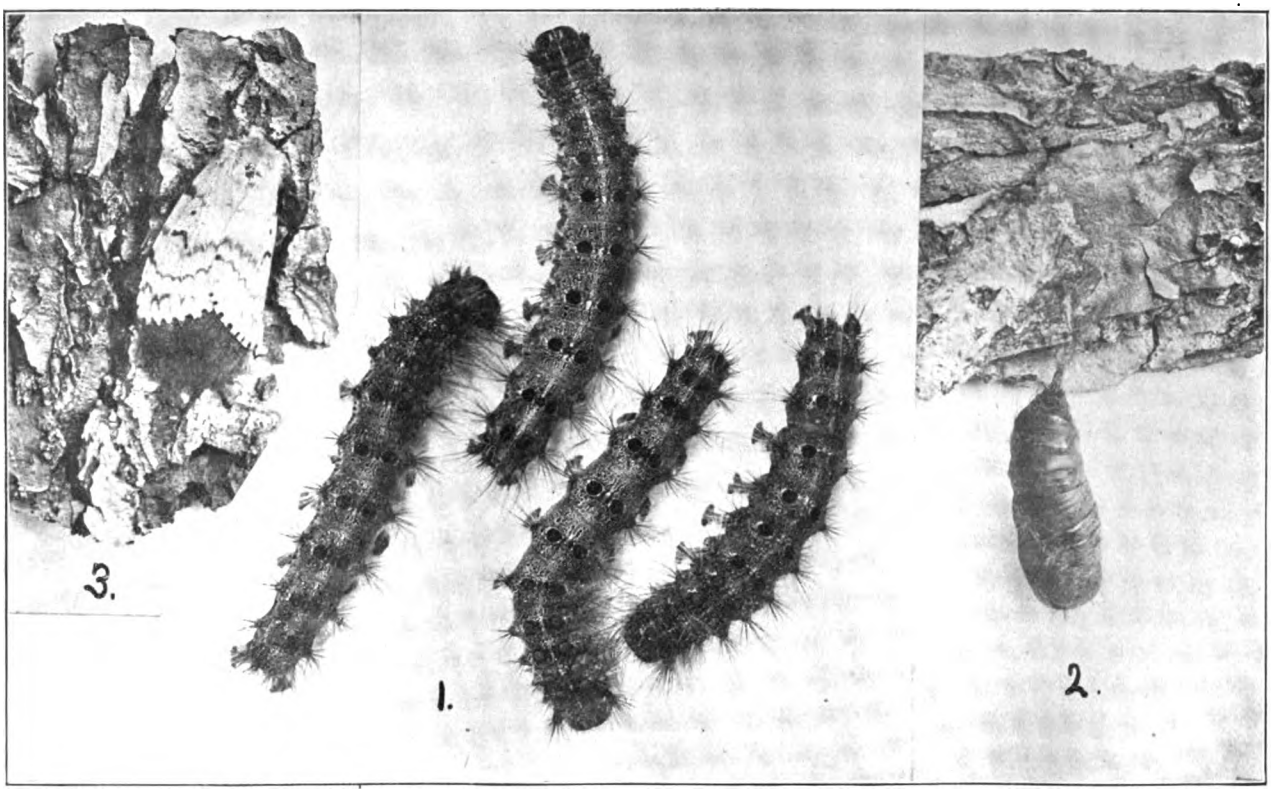

PLATE IV.

1. Full-grown caterpillars of gypsy moth. 2. Pupa. 3. Female gypsy moth laying eggs. After Kirkland.

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to time throughout the country. In order that it may be realized what a scourge it had become by the time the people began to make concerted efforts to secure State aid for its destruction, the following abstracts, taken from the Special Report on the Gypsy Moth, issued by the Massachusetts State Board of Agriculture in 1897, may be of interest:

"The number of caterpillars that swarmed over certain sections of the town during the latter part of June and most of July, 1889, is almost beyond belief. Prominent citizens have testified that the "worms" were so numerous that one could slide on the crushed bodies on the sidewalks; and that they crowded each other off the trees and gathered in masses on the ground, fences, and houses, entering windows, destroying flowering plants in the houses, and even appearing in the chambers at night. The huge, hairy, full-grown caterpillars were constantly dropping upon people on the sidewalks beneath the trees, while the smaller larvæ, hanging by invisible threads, were swept into the eyes and upon the faces and necks of the passers. The myriads that were crushed under foot on the sidewalks of the village gave the streets a filthy and unclean appearance. Ladies passing along certain streets could hardly avoid having their clothing soiled, and were obliged to shake the caterpillars from their skirts. Clothes hanging upon the line were stained by the larvæ which dropped or blew upon them from trees and buildings. In the warm, still summer nights a sickening odor arose from the masses of caterpillars and pupæ in the woods and orchards, and a constant shower of excrement fell from the trees. The presence of this horde of gypsy-moth larvæ had become a serious nuisance and was fast assuming the aspect of a plague. The condition of affairs at this time is best shown by the extracts from statements of residents."

"'When the caterpillars were small they would spin down on their threads and blow out into the street and even entirely across it. The caterpillars were a dirty pest. You could hardly go out of doors or sit down anywhere without getting them over you. Trees were either completely stripped so that not a green thing was to be seen on them, or else were eaten so that the skeletons of the leaves only remained. The caterpillars were very numerous on a large tree behind my house. I have scraped them off by the quart on the fence and shed adjoining the tree. They clustered as thickly as bees swarm. Before caterpillar time we used to see bodies of trees plastered all over with their egg clusters. They were so thick on certain trees that they reminded me of shells at the sea-shore.' (J. H. Rogers, 17 Spring street.)

'We spent hours killing caterpillars on them (street elms.) We would get two

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quarts at a time. They were very large. They got into every crevice and under every piece of bark. Our neighbor across the way, Mrs. Turner, used to go out with a pail of hot water and poke the caterpillars into it with a stick. My son used to tie a rag soaked with kerosene around a pole and set it on fire and singe them off the trunks of the trees.' (F. E. Foster.)

'I had charge of this estate (Sparrell estate, Main street), and I killed a great many caterpillars by brushing them off the trees with a broom and crushing them. After brushing them off the trees, I would wait half an hour and then there would be just at many again on the trees. I could have gathered a half-bushel of caterpillars every evening through their season' (Richard Pierce.)"

These conditions aroused the people to such an extent that public action had to be taken for the purpose of fighting the pest. A movement was set on foot with the view of obtaining legislative action and appropriations for the purpose of aiding in the fight. An act was passed and approved March 14, 1890, creating a commission with power to conduct the fight and appropriating a sum of $25,000 with which to prosecute the work. The commission was soon dissolved, however, and the work was placed in the hands of the State Board of Agriculture, which carried it on for nine or ten years with notable success, and expended approximately three-fourths of a million dollars. At the end of this period the moth had been exterminated in a great many of the sections where it had been found, and so reduced everywhere that when a committee was appointed by the State Legislature to investigate the need of further appropriations, the men who were interested in continuing the work until a complete extermination should be arrived at were unable to show insects, or the results of their work, in sufficient quantity to convince the committee that an appropriation was necessary. The report of this committee as quoted by Superintendent Kirkland in his first annual report of 1906 is interesting because it indicates the thoroughness with which the first campaign had been carried out, and incidentally it is the greatest compliment that could have been paid to those who had prosecuted the work. It is as follows:

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"We find no substantial evidence that gardens, crops, or woodlands have suffered serious or lasting injury, or are likely, with that proper precaution or oversight which property owners are supposed to give to their own interest, to be subject to the devastation which one would have in mind to anticipate from these reports. . . . It appears to us that the fears of the farmers throughout the State have been unnecessarily and unwarrantably aroused, evidently for the purpose of securing the effect of those fears upon the matter of the annual appropriations. . . We do not share these exaggerated fears, and the prophecies of devastation and ruin are unwarranted and in the most charitable view are but the fancies of honest enthusiasts."

That this committee was not as fully aware of the dangerous character of the pest as those who had been working with it became apparent through subsequent history of it in Massachusetts. According to Superintendent Kirkland but little damage was noted during the years 1900 and 1901. It was rapidly increasing, however, and in 1902 a number of estates were invaded and the trees stripped.

This was especially so on the property of non-resident owners where no attempt was made at keeping it in check. In 1904 it became evident to even the casual observer that the moth had reinfested the area which it had formerly occupied and was rapidly spreading.

The people again became awake to the necessity of concerted action. The combined activities of the gypsy and brown-tail moths so thoroughly stripped many sections in the neighborhood of Boston that the territory looked as if swept by fire. Again quoting from Kirkland's report:

"The hungry caterpillars of both species of moths swarmed everywhere: they dropped on persons, carriages, cars and automobiles, and were thus widely scattered. They invaded houses, swarmed into living and sleeping rooms and even made homes uninhabitable. Thousand of cases of poisoning of human beings resulted from the swarming of the brown-tail caterpillars. Real estate in the worst infested districts underwent a notable depreciation in value. Worst of all, pines and other conifers—altogether too scarce in Eastern Massachusetts—were killed outright by the gypsy-moth caterpillars, while shade trees and orchards were swept bare of foliage. Property owners who were disposed to care for their own estates suffered and became discouraged from the neglect of their neighbors.

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It was evident that the moth pests were in the ascendency, and that they could be controlled only by prompt, thorough, and systematic effort."

The people were thoroughly aroused. Individuals, and agricultural and horticultural societies, civic improvement leagues, and forestry associations, were a unit in demanding legislative action for the suppression of the pests. The resulting bill was signed by Governor Douglas, May 8, 1905. This bill provided for the appointment of a commissioner by the Governor, and the direct appropriation of $250,000. The act was an improvement in a great many ways on that which had formerly been in force, but principally in that it placed the work in the hands of one man as superintendent and made him alone responsible for the work. Governor Douglas appointed Mr. A. H. Kirkland, who had been connected with the work during nearly all of the period of the first campaign. Superintendent Kirkland at once entered on his duties, and one of his first objects was to find out to what extent the moth had spread during the period of inactivity in the fight against it. The results were truly astonishing. It was estimated that at the close of the first work in 1900 there were thirty-four cities and towns infested and an area of 359 square miles. At the close of 1905, while as yet the scout work had not been completed, the infested section embraced 124 cities and towns and an area of 2,224 square miles. Since then further inspection has revealed the presence of the moth in a few places outside of this district. It became evident, therefore, that even with the best work possible all that could be done with the appropriation at hand would be to endeavor to check the spread of the insect. By a provision of the act, individuals and communities are compelled to aid in the fight against the pest on their estates and in their localities, to the amount of a certain per cent of their taxable property. The plan of the work was to destroy and prevent the ravages of the pest on private residential property, and in order to prevent the spread of the moths, roadsides in forests and wastelands were cleared and the trees were banded and sprayed. It was impossible to do anything

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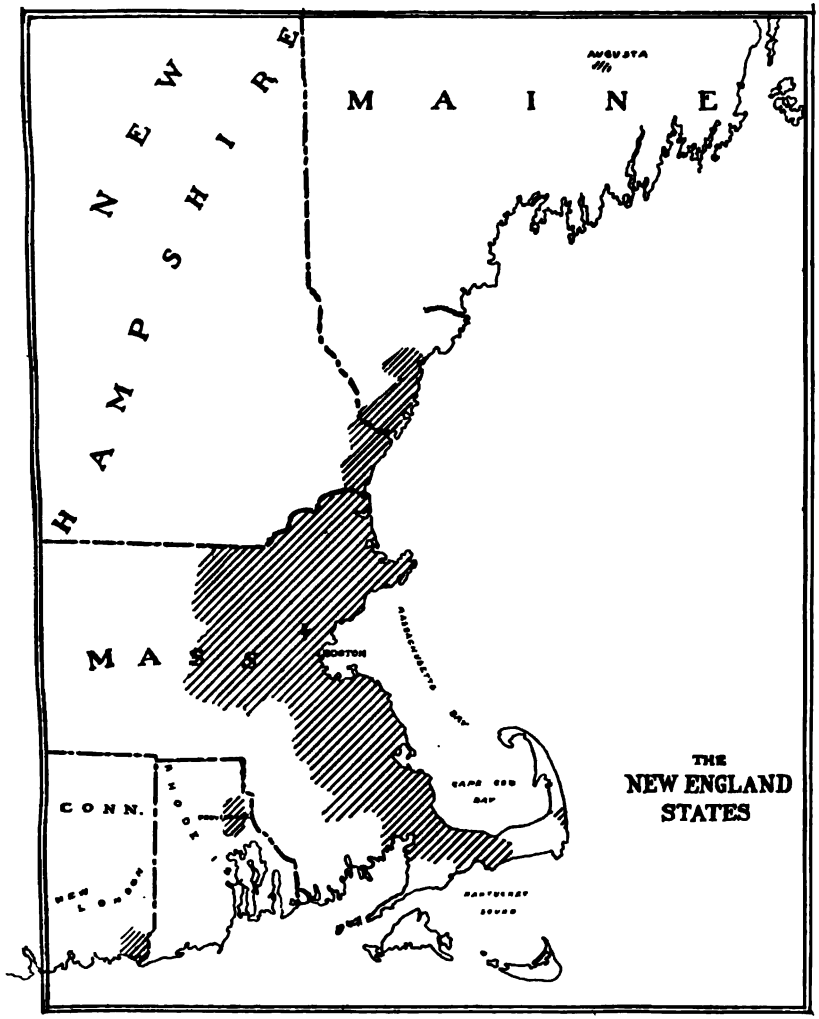

OUTLINE MAP OF NEW ENGLAND STATES.

The shaded portions indicate approximately the regions known to be infested by the Gypsy Moth, December 1, 1906. Scouting of unexplored territory by the United States Department of Agriculture is still in progress, and it is possible that some additional territory will be found to be infested.

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for trees in the woodlands themselves. In 1905 and 1906, therefore, large areas of such woodlands and parts of some of the larger parks were stripped, and thousands of trees, especially pines, were destroyed and had to be cut down and turned into cord wood. Pine Banks Park, for instance, last summer presented a depressing spectacle of standing dead pines, stripped and dead deciduous trees, and piles of cord wood derived from trees already cut down. Lynn Woods Park had to be closed to the public, and it is stated on good authority that the caterpillars became so numerous on the rails of the electric roads, in one place at least, as to interfere with the running of the cars because of the presence of their crushed bodies.

History of the Gypsy Moth in Rhode Island.

(See map of Providence and vicinity).

The first appearance of the gypsy moth in this country outside of Massachusetts was in the city of Providence. This colony was discovered in 1901. According to a pamphlet published by the Rhode Island State Board of Agriculture and written by Mr. Southwick, the following is a history of its discovery:

Mr. Prescott D. Reynolds was the first person to discover and report the appearance of the moth in America outside of Massachusetts. He is one of the several amateur entomologists of Providence, and is particularly interested in the collection of moths and butterflies. He discovered a few female moths, and their very characteristic patches of eggs, Wednesday, July 31, 1901, on some shade trees in Courtland street. They were on the trunks of the trees close to the edge of the sidewalk and liable to be rubbed off at any time. The specimens were carried to Mr. Southwick, who identified them as the gypsy moth. Mr. George A. Stockwell, Secretary of the R. I. State Board of Agriculture, was notified, and on his recommendation Mr. Southwick went to Boston to confer with the Massachusetts State Board of Agriculture, which had in charge the gypsy moth work in that State. Secretary Stockwell of this Board and Mr. Kirkland accompanied Mr. Southwick back to Providence in order to investi-

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gate the extent of this new infestation. They were met at the depot by Secretary George A. Stockwell and by Mr. Reynolds, and proceeded at once to the place where the insect had been found. It was thought from the appearance of the infested district that the insect had been established about two years and that the area comprised from five to ten acres.

A conference was held with acting Mayor William K. Reynolds and a number of members of the city council at the city hall, as a result of which Mr. Southwick was authorized to spend $25 in further investigation. Through the kind co-operation of Mr. Kirkland, the services of Mr. F. H. Mosher, an experienced assistant on the Massachusetts gypsy moth work, were secured for the purpose of ascertaining the full extent of the colony. Later the city increased the appropriation for the work to one hundred dollars ($100), and the city of Providence was quite thoroughly scouted. August 24, Mr. Southwick reported that the scouting had revealed a much larger territory than was at first suspected, and that the moth was spread between Westminster and Broadway from Courtland street to Harkness street, and between Westminster and Cranston streets from Bridgham street to Dexter street. It was also found along the west side of Elmwood from Sprague street to Columbus street, and on Lexington and Adelaide avenues; and another small section was bounded by Broad and Taylor streets and Harvard and Comstock avenues. There were two small outbreaks on Prairie avenue and on Thurber's avenue, and one on Huntington avenue. Around Benedict Pond a decidedly bad condition was found. Mr. Southwick surmised that it extended over the city line into Cranston, but no scouting could be done there because the appropriation under which this work was done confined it to the city of Providence. The sections mentioned are indicated in diagonal black lines on the accompanying map.

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History of the Agitation for a Campaign Against the Gypsy Moth in Rhode Island.

The writer regrets that he has not had time to look very fully into the history of what was done previous to last fall with a view of securing legislation to suppress or exterminate the gypsy moth. A number of the reports of the State Board of Agriculture call attention to the presence of the insect and advocate appropriations and legislative measures to deal with the situation. Two years ago a bill carrying an appropriation of about three thousand dollars was introduced by John G. Clarke, Sec. of the State Board of Agriculture, but failed to secure the necessary support for passage. From time to time a number of private citizens have been calling the attention of the State Board of Agriculture and some of the members of the legislature to the need of such legislation. Private enterprise has also been active looking toward conducting a fight against the gypsy moth. Notable among these was the Providence Tree Protection Society. This society was organized at the instance of Mr. Alfred Stone, who has taken an active interest in this as well as other lines of legislation dealing with insect pests. This organization raised quite a little sum of money and engaged men to destroy the elm leaf-beetle, gypsy moth, and other tree pests. Last spring the residue of the funds of this society was turned over to the Park Board and by them used in combating the gypsy moth in the neighborhood of Roger Williams Park.

The history of the work which led up to the appropriations of last year, being more recent, has been more easily ascertained. At a meeting of the Rhode Island Horticultural Society at Providence in November, 1905, Dr. Wheeler, Director of the Rhode Island Experiment Station, related his experiences on a trip through the infested regions of Massachusetts and called the attention of the members of that society to the danger which threatened the horticultural interests of Rhode Island from the gypsy moth colony which had become established in Providence. Subsequent to this meeting, Dr. Wheeler

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No special effort has been made to obtain accounts from people in the infested district of Providence, but the following have come in, in answer to inquiries sent. Personal visits to places in the infested district will more than verify any of these statements.

"The gypsy moth was brought to my notice by seeing the men sent out by the city taking them from a few apple trees in my yard. I think the men came about once in two weeks for four or five times, and each time they destroyed all they could find and at the last of it the men overturned about ten cord of cord wood that was piled up in my yard and found the moths in large quantities. I think the men did a good job of it. I also think if the pests are followed as close another year and people generally take hold and destroy their share that it will be money and time well expended." (Thomas W. Early, 283 Thurber's Avenue.)

"I do not think we have had them for more than three or four seasons. They have attacked all of our trees and shrubs. I presume they would have stripped the trees of their foliage had we not had them sprayed. I most certainly think they would defoliate all the trees if allowed to spread. We have had our clothing stained by them, and have found them very uncomfortable and disagreeable, and I think they would increase very rapidly if measures were not taken to exterminate them. We had our trees sprayed twice last spring and summer, but I do not think it did much good excepting that it cost us considerable money. The last set of men tore down the burlaps and trimmed the trees, so I hope we shall not have quite as many as last year." (Delia D. Cole.)

"A year ago last spring I noticed a great number of long shells on the quince trees, but didn't notice many worms that year. Last spring there seemed to be another lot of the same kind of shells on all the trees, and after that there were a great many worms. They would spin down from the trees and get on the house. We could not go out of doors without getting them onto us. I think if the men that came around hadn't taken such good care of the trees, the leaves of all the trees would have been eaten. I think we will have just the trouble here as they did in Boston if they are not watched very close. (Mrs. Smith, 16 Autumn Street.)

"We have noticed the caterpillars for the past two years, during which they attacked six trees. They were so numerous that they stripped trees of their leaves and prevented them from bearing fruit. They also dropped from them on people passing under, and we have found them on lace curtains and other cloth in the house. The walks were covered and we couldn't sit under the trees

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at any time. As we have been disturbed quite a considerable for the past two years, I think that the people of Providence ought to try to prevent the insect from destroying trees throughout the State." (C. E. Price, 179 Sherburn Street.)

Occurrence in Other States.

(See map of New England States, and of Infested district around Stonington, Conn).

Connecticut

A colony of the moths was discovered last year in the neighborhood of Stonington. Fortunately that State has a standing fund for dealing with insect pests, and prompt measures were at once taken to exterminate it. It is located in a section of brush-land where it is rather difficult to find, but on the other hand the infested area is very small, covering approximately only one square mile, and it is also hedged about by water in such a way that the moth can escape only in one direction. A letter from Dr. Britton, quoted on page 70, says that he has the situation well in hand and hopes to exterminate the colony in the near future.

New Hampshire.

In 1905, Professor Sanderson of the New Hampshire Agricultural College secured an expert scout from the Massachusetts force. He, together with Professor Sanderson's assistant, scouted the towns along the coast to and including the city of Portsmouth. The pest was found in nearly all of these towns. Professor Sanderson says that the infestation in New Hampshire is probably confined to Rockingham county, east of the Western Division of the Boston and Maine Railroad.

Maine.

During the present fall, notice has been received that there is a very small colony in the southeastern corner of Maine in the towns

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of Kittery, Elliot, and York. A stray egg cluster was also found at the Soldiers' Home at Togus, near Augusta. The United States Bureau of Entomology is now scouting the region from Kittery to Portland, and it is possible that further infestations may be found.

Occurrence of the Gypsy Moth in Foreign Countries.

The gypsy moth is a well-known and seriously injurious insect throughout a large section of the northern part of the Eastern Hemisphere. It is very prevalent throughout all the countries of continental Europe. It is found as far north as Stockholm in Sweden, and St. Petersburg in Russia, across temperate Asia to China and Japan, south into Ceylon and Northern Africa. The insect has probably been present in all of these regions, with the exception of Northern Africa, for many centuries, and its parasitic enemies are quite numerous and active. For this reason it is seldom that it maintains itself to an extremely injurious extent for a great number of years, but nevertheless there are frequent outbreaks in which large sections of the country are devastated. Only a few years ago a section of Southern Russia and neighboring countries as large as the states bordering on the Atlantic in this country was thoroughly devastated causing untold loss. A special report of the Massachusetts State Board of Agriculture on the gypsy moth quotes numerous records from the entomological literature of Europe, showing that, long before entomology was studied to any extent, records of outbreaks of this insect have been made. A number of years for the past two centuries have been known as "caterpillar years" in various sections of Europe from the fact that the gypsy moth was extremely prevalent. In recent years the insect has received a great deal of attention from European entomologists, and one of the problems which the modern forestry policies of Germany and other European countries have to consider is that of preventing damage to woodlands from the gypsy moth.

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E GYPSY MOTH IN FOREIGN COUNTRIES.

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PLATE V.

Female gypsy moths laying eggs. The branch on which they are was cut from a tree near Mashapaug Pond. In among the straw of the bird's nest can also be seen the empty pupa cases and a number of cast skins of the caterpillars. If one looks closely two male moths may be observed at the left.

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A Short Description of the Gypsy Moth.

The following description will, so far as practicable, avoid the use of technical terms, and the best pictures obtainable will be added as illustrations. Still it is realized that many who are unacquainted with the study of entomology and unaccustomed to determining species of insects from printed or oral descriptions will find it more or less difficult to decide whether a specimen found is really the gypsy moth or some other insect which has always been with us. Those who may be so perplexed can compare the specimens found with the life history mounts placed in the libraries of the State, or, what will be still better, send the insect to the office of the Commissioner at the Rhode Island College, Kingston. It need not be urged upon anyone, in view of the destructive character of this insect and its vast possibilities for continued and untold damage if it once gets a widely scattered foothold in our waste forest lands, to watch carefully all insects suspected and to report their presence and send specimens if necessary. The experiences in Massachusetts, related in part elsewhere in this report, should be sufficient warning to the people in Rhode Island not to suffer this pest to escape their vigilance.

The eggs of the gypsy moth are laid in elongated, flattened clusters, about one-third to one inch by one-half to one and one-half inches. Each cluster contains from three hundred to six hundred eggs. The eggs are nearly globular, and one-twentieth of an inch in diameter. In color they are of a dark salmon when first laid, but if fertile, they darken considerably on the development of the embryo, which is fully formed in about three weeks. The eggs are closely packed, and held together by a kind of cementing material. The cluster is covered over with yellow hairs which are detached from the body of the female while depositing them. This covering and the cementing material render the clusters quite impervious to water from rain or snow, or to injury from extremes of temperature. As indicated by the dimensions already given, the egg clusters are generally of an elongated shape. They vary, however, considerably with the location in which they are found and the circumstances attending the

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laying. On twigs and on weeds where a narrow surface must be utilized, the clusters are much more elongated than on surfaces where lateral extension is possible. Again, owing to crowding of other females in the act of laying, or of disturbance, interruption, or peculiar conformation of the object upon which the insect is located, the egg clusters may assume various shapes, which may be described as "bunched," "elongated," "crooked," or "partially interrupted." When first laid the egg cluster is of a yellowish color, but after exposure to the elements for some time the color fades to a considerable extent. When the insect is numerous egg clusters are frequently laid on top of each other, and it is not an unusual occurrence to find dead females covered up by clusters laid by other females which commenced egg-laying after the earlier ones had completed the process.

The gypsy moth exercises but very little choice as to where its eggs shall be deposited. When the caterpillars are numerous they scatter a good deal toward the end of their period of growth, and in such cases one may expect to find the eggs in almost any conceivable place: under stones, rubbish and leaves, on the trunks and branches of trees, in bird nests, and under fence rails, etc. Last fall clusters were frequently found in large quantities by the workers in stovepipes, tin cans, and other rubbish on dump heaps.

As is partly indicated by its range, the eggs of the gypsy moth caterpillar are quite resistent to extremes in temperature. Experiments in Massachusetts have shown that clusters can be heated to from 130 to 140 degrees and that the eggs still hatch readily. Clusters were subjected to a temperature of 20 degrees below zero without any apparent diminution in the percentage of hatched eggs. Rapid changes between these extremes also seemed to have but little deleterious effect on the eggs.

Observations have indicated that the eggs of the gypsy moth hatch about a week or ten days earlier in this State than in Massachusetts. In Providence this year the first caterpillars were observed shortly after the middle of April. It takes from three to five days for all the eggs of a cluster to hatch, and the caterpillars remain

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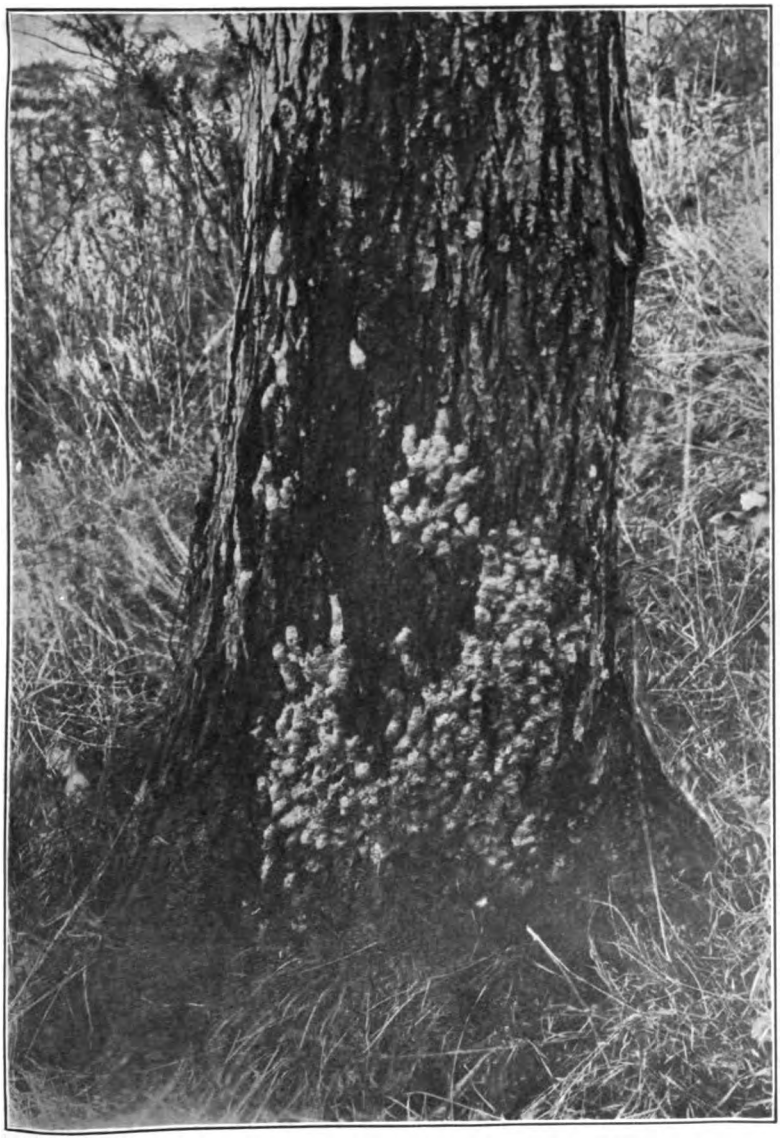

PLATE VI.

Egg clusters at the base of an oak tree between the railroad track and Benedict street in Cranston. This is but a small part of one tree in this locality, and there are caterpillars enough in the egg clusters on this single tree to strip all the trees in the neighborhood next summer.

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grouped on the cluster for two or three days after hatching before they start out to seek food. At this time the young caterpillar is about one-sixteenth of an inch in length, hairy, and with a relatively large black head. The first stage lasts from eight to ten days, after which it sheds its skin and increases somewhat in size and changes slightly in color. During its lifetime the caterpillar passes through six or seven such changes or moults. It changes in color each time, and of course becomes larger. Not until the fifth moult, however, do we get the characteristic markings by which anyone can distinguish it. At this time the caterpillar is of a dark ashen or mottled gray color and covered with dark brown and grayish hairs which grow from tubercles along the sides and back. Along the back are two rows of colored tubercles. *The first five pair of these are blue, and the following six pair are crimson.* The head is smaller and less prominent in comparison with the body than it was in the earlier stages, and is of a dark gray to black mottled color. The full-grown caterpillar measures from one and one-half to two and a quarter inches in length.

The caterpillar becomes full-grown in about ten weeks, and then usually seeks some partially protected place in which to spin a flimsy cocoon and change into a pupa. In this, as in the egg-laying, the insect shows the same carelessness in choice of location, and often chooses exposed sides of tree-trunks or the roughened bark on the under side of the larger branches. When the caterpillars are numerous they frequently migrate to rubbish in the region surrounding the infested trees and pupate in old tin cans, boxes, barrels, old stovepipes, etc., as has been indicated by the finding of egg clusters in these places. At this time the female pupa is usually much larger than the male and therefore readily distinguished. The pupæ of both male and female are dark brown in color, with a few scattering yellow hairs, and to the uninitiated they may look a great deal like the pupæ of many other moths. The insect remains in the chrysalid, or pupa stage, for ten or twelve days.

In the *imago*, or adult stage, the insects differ greatly, so much so, as compared with other insects, that it gave rise to the Latin specific

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name of *dispar*. The male is much smaller and more slender bodied than the female, and flies actively in the daytime with a fluttering, zigzag motion. In size it measures about one and one-half inches across the wings. In color it varies from a light to a dark brown, with irregular, more or less broken markings of a darker shade across the forewings. The hind wings are a little lighter in shade than the forewings and not so distinctly marked. Along the outer edge of each wing is a border of lighter color interrupted by darker spots or blotches. The antennæ are quite prominent and feathery. The segments of the abdomen are marked with narrow bands of a slightly lighter shade than the ground color.

The female is white or creamy in color with dark bands or markings across the wings similar to those of the male. It measures about two inches across the wings. Its body is much larger than that of the male and covered with hairs of a light yellowish color. The yellow shade is darker and more pronounced on the under side and toward the tip of the abdomen. The antennæ are black in color and much smaller than those of the male. Although apparently supplied with abundant wing surface, the female never uses her wings except to flutter a little and break her fall should she be dislodged from a position some distance from the ground. On this characteristic of the female depends one of the reasons why it is possible to exterminate the gypsy moth in restricted localities. There is no possibility of the insect spreading by the flying female.

The Means of Spreading.

Of itself the insect is spread principally by the migrating of the caterpillars from one place to another. This is usually very slow unless the insects become so numerous as to destroy all food material. In such cases the caterpillars will probably migrate for quite a little distance each year. Distribution in this way would be comparatively slow at best and the greatest danger comes from the transportation of the insects by man and other agencies. It is probable that animals passing through woods infested with the gypsy moth may intercept

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PLATE VII.

Searching for gypsy moth egg clusters under a fence by the aid of a small hand mirror.

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some of the spinning caterpillars and carry them to other regions. The great danger, however, in this mode of distribution comes from the transportation on vehicles, such as wagons, automobiles, electric cars, etc., from places where the caterpillars are numerous to uninfested regions. The writer recollects driving through a piece of woodland in Massachusetts last summer where the caterpillars were spinning down from the trees in which the foliage had been more or less destroyed. A number of these fell into the carriage and on those who were in it, and upon emerging from the woods it was necessary to stop and look the vehicle and our clothing over carefully to destroy the caterpillars which we had carried with us. Distribution in this way is also comparatively uncertain, as there are many chances that caterpillars will be scattered singly in places far apart and thus be unable to found a new colony.

The greatest danger comes from intentional scattering of the insect and from the transportation of egg clusters on lumber, wood, building material, bricks, stones, lawn furniture, rubbish, etc. In such cases a large number of individuals hatch out, and although the beginning of a colony which originates in this way may be feeble, owing to inbreeding and other unfavorable circumstances, yet the chances for a start in this manner are very good.

Superintendent Kirkland, who closely observed the insect when its presence was first noticed in Providence, states that the several colonies were apparently of the same age, and that conditions pointed strongly to the supposition that the pest had been introduced by some irresponsible or malicious person. Another supposition is that the moth was introduced in the form of egg clusters on lawn furniture which was carried into Providence by people removing from Boston.

Whichever of these theories regarding the introduction of the pest into Rhode Island is correct, there is no doubt that many of the outlying colonies have originated from the primary colonies through the transportation of egg clusters. For this reason it is of the utmost importance that great care should be exercised not to remove any material whatsoever that is liable to carry the egg clusters without

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first making sure that none are present. There should be a provision in the law that notice must be given to the Commissioner of the gypsy moth work, and permission for the removal of material in gypsy moth districts be obtained before such material is carried away. It is also essential that all public-spirited citizens should be on the lookout for the careless or intentional violation of such laws in order that information may be given the Commissioner in charge before the spreading is accomplished.

Prospect for Control of the Gypsy Moth by Parasitic Enemies and Fungous Diseases.

During the first campaign in Massachusetts against the gypsy moth, from 1889 or 1900, the appropriations were made with the idea of exterminating the insect, and for this reason but little attention was given to parasitic enemies, aside from studying such of our native parasites as seemed to be developing the habit of affecting the gypsy moth. In this study it was learned that a great many of our native hymenopterous and dipterous parasites, as well as predaceous insects of various kinds, were useful in reducing the numbers of the moth to some extent. It is evident, however, from the history of the insect in this country and from the fact that it is now thirty-six years since it was introduced, that the combined forces of all the insect, bird, and other enemies which the gypsy moth may have are insufficient to keep the insect within bounds.

The history of the insect in Europe, while it shows that it is very destructive over certain sections at intervals, also shows that its invasions are very similar to those of our tussock moth, army worm, and tent caterpillar in this country; namely, that it will increase for a period of a year or two, and then its parasitic enemies, finding plenty of food, will have increased in a large degree and will cause the destruction of nearly all the moths. This balance of an insect and its foes was destroyed for the gypsy moth when it was introduced in this country, and it has been having things very much its own way because its enemies were left behind.

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Recent appropriations in Massachusetts and also an appropriation by the Department of Agriculture at Washington have been made with a view of introducing to this country some of the insects which prey on the gypsy moth in Europe. A fund, extending over three years and amounting to something over $30,000, is made available by these combined appropriations. Superintendent Kirkland of the Massachusetts work has placed the bulk of his appropriations in the hands of Dr. L. O. Howard of the National Department of Agriculture, for the purpose of carrying out the provisions for which this appropriation was made. Dr. Howard is one of the foremost authorities on parasitic enemies of insects and has a wide acquaintance with entomologists of Europe, so that the work has been placed in excellent hands. Through a visit which he made to Europe last year, and through the plans which he then set in motion, shipments of parasitized gypsy and brown-tail moths are continually being made when ever material is found.

In this effort to introduce parasites almost the entire country of Europe is being scoured to secure them. A Tachina fly, *Tachina larvarum*, which is known to be very destructive to the caterpillar of the gypsy moth in Europe, has been introduced, and next year an attempt will be made to propagate it extensively. Attempts have also been made to introduce a predaceous beetle, *Calosoma sycophanta*, related to our predaceous beetles of the same genus in this country, but, unlike them, more efficient in destroying caterpillars which infest trees. So far living specimens of this beetle have not survived the passage of the Atlantic but it is hoped another year that specimens will be successfully imported. Dr. Howard has made arrangements with a great many entomologists and collectors throughout Italy, Austria, Germany, and France to be on the lookout for material which may be of use to us, and to send it on to Superintendent Kirkland at Boston.

In all this work great care is being taken not to introduce secondary parasites; that is, parasites which feed on the primary parasites in which we are interested. An insectary and laboratory has been

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established in one of the infested regions near Boston, and here the work of rearing and studying the parasites will be carried on. It is the intention of the Massachusetts authorities to send out broadcast to all the infested regions such parasites as may be found efficient, and the people of Rhode Island may hope, therefore, that, should anything be discovered, the benefit thereof will accrue to the interest of our citizens as well as to those of neighboring States. However, as anyone will note by reading the letters of Superintendent Kirkland, Dr. L. O. Howard, and others, which are copied in whole or in part on pages 64 to 73, the problem of securing efficient parasites is still unsolved, and it is not wise for the people of this State to wait until such a time as it may be determined whether insect parasites can be introduced or not, because the cost of taking up the work of suppression at such a time will be far larger than will be the cost of keeping it in suppression, or even exterminating it, at the present time.

Importance of the Gypsy Moth as Compared with Other Insect Pests Common in the State.

It has seemed to a number of people during the past year or two, and it is often expressed, that the gypsy moth has not been unduly destructive, and many feel that the elm-leaf beetle, the scale, the tussock-moth, the elm-caterpillar, etc., are much more serious pests at present than the gypsy moth. This latter statement was undoubtedly true for this season. The elm-leaf beetle especially, in many parts of Providence as well as other cities in the State, was very destructive during the past summer, defoliating trees in many cases. The egg clusters of the tussock moth have also been very numerous, and as they are likely to be even more readily seen than those of the gypsy moth, people are led to think that this insect is much more numerous than the pest against which the State Commissioner has been working. These conditions, however, should not mislead anyone. The above-mentioned insects are natives of this country, or, with the exception of the San José scale, they have been here long enough to have a num-

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PLATE VIII.

Using a medium long-handled brush for creosoting egg clusters on trees some distance from the ground.

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ber of parasites which serve to keep them in check. They are also subject to various diseases, and their vitality and life history is such that large numbers often perish owing to unfavorable climatic conditions.

This desirable balance between the insect and its foes thus established has already been briefly explained on page 30, and need not be repeated here. The gypsy moth has no such checks, and there are no natural means to keep it from increasing until its food supply is exhausted; and this is not a condition which promises any relief, as it has an omnivorous appetite in contradistinction to the other insects mentioned, which are limited to one or a few food plants. If not fought by man, therefore, it is capable of increasing until it assumes the proportions of a veritable plague, and that it will do this is amply illustrated by its history in Massachusetts.

Among the specimens sent into the office or pointed out to the Commissioner or his inspectors as gypsy or brown-tail moths the past season the following insects may be mentioned. Many of them bear no resemblance to the pest in question, and some of them would perhaps not have attracted attention if it had not been for the interest aroused in plant pests. Some of the species mentioned, notably the elm-caterpillar, elm-leaf beetle, and white-marked tussock-moth, were very numerous and perhaps for that reason were suspected of being the notorious pests. Occasionally people seemed to think that we ought to deal with all injurious insects, and sometimes insisted that a certain insect must be the gypsy moth because it was very injurious, and that we should look after it.

American dagger,	*Acronycta americana.*
Hickory tiger-moth,	*Halisidota caryæ.*
Salt-marsh caterpillar,	*Estigmene acræa.*
Elm-leaf beetle,	*Galerucella luteola.*
Forest tent-caterpillar,	*Clisiocampa disstria.*
Apple tent-caterpillar,	*Clisiocampa americana.*
White-marked tussock-moth,	*Hemerocampa leucostigma.*

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Spiny elm caterpillar, Larva of mourning cloak butterfly,	*Euvanessa antiopa.*
The yellow-necked caterpillar,	*Datana ministra.*
The red-humped prominent,	*Œdemasia concinna.*
Fall web-worm,	*Hyphantria cunea.*
Willow saw-fly,	*Cimbex americana.*
Currant-worm,	*Nematus ribesii.*
Io moth (larva),	*Automeris io.*
Tomato-worm,	*Protoparce celeus.*
Celery worm,	*Papilio asterias.*
Common swallow-tail butterfly,	*Papillio turnus.*
Pandorus sphinx,	*Philampelus pandorus.*
Long-tailed ichneumon (from Providence),	*Thalessa lunator.*
Horned corydalus, "Dobson" "hellgramite,"	*Corydalis cornuta.*
Canker-worms,	*Paleacrita vernata.* *Anisopteryx pometaria.*
Climbing cut-worm,	*Carneades scandens.*
Maple phenacoccus,	*Phenacoccus acericola.*
Promethea moth (cocoon),	*Callosamia promethea.*
Cecropia moth,	*Samia cecropia.*

Methods of Fighting the Gypsy Moth.

During the many years that the State of Massachusetts has fought the gypsy moth, its habits and life history have been quite fully recorded. No insect has ever been so closely studied, and the published results of such studies, issued by the Massachusetts State Board of Agriculture, are monumental in their thoroughness and extent. This is especially true of a special report issued in 1897 and written by E. A. Forbush and Dr. Fernald. All known methods of fighting insects were tried, and everything in the way of apparatus and materials which had ever been used for similar purposes were obtained

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and tested. The result is that we have in this country at the present time a far more complete knowledge of this insect than is found in its native country, and the methods of fighting and the remedies to be used are far in advance of those employed in Europe in their efficiency.

Destroying the Egg Clusters.

Since the insect remains for eight or nine months of the year in the egg stage and the eggs are grouped in fairly conspicuous egg clusters, their destruction becomes the most practical and economical way of dealing with the insect. The drawbacks to this method are that, on account of the secretive habits of the insect, egg clusters are sometimes laid in places where they are not easily found and therefore escape the notice of workmen and inspectors. Eggs are often scattered during the laying and fall on the ground. Experiments have shown that such eggs are often hatched, and caterpillars appear to the astonishment of the workmen who supposed that they had destroyed every egg cluster in the place.

European methods of dealing with the egg clusters consisted in removing them from the places where they were laid and burning them, and in applying coal tar and oils to them. The former method is undesirable because in removing the eggs the workman is liable to scatter a number of them, which, as indicated above, may hatch the following season. Coal tar and oils are fairly efficient, but somewhat difficult of application, and the method of applying creosote, which has been developed in this country, is far more practicable. When an egg cluster is thoroughly saturated with this substance there is little chance that any of the eggs will escape destruction. Burning the eggs where found has also been tried, but has been found inefficient because the hairy covering of the cluster seems to protect the eggs underneath very thoroughly and an intense amount of heat is necessary to destroy all the eggs. Pure creosote gives no readily noticeable stain or discoloration after drying, and in order that the workers and inspectors may know what nests have been treated, it is custom-

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ary to incorporate with the creosote, tar or lampblack. Clusters painted with such a mixture show by their discoloration for a long time afterwards that they have been treated. The usual proportion of such a mixture is 85 per cent. pure creosote and 15 per cent. of coal tar; or 6 gallons of creosote and one pound of lampblack. The former mixture is perhaps the best for warm weather; the latter for the winter months. Another more complicated mixture is sometimes recommended, but it is doubtful if it is more efficient than the ones mentioned above. It is made up as follows: Creosote oil, 50 per cent.; carbolic acid, 20 per cent.; spirits of turpentine, 20 per cent., and coal tar, 10 per cent.

Burlapping.

Even with the most careful work a few egg clusters and eggs are liable to escape and the resulting larvæ must be caught in some way. In studying the habits of the caterpillars it was found that after having reached the fourth moult they feed only at night and seek some hiding place during the daytime. According to the Massachusetts report, the habits of the insect in this respect have been found to be quite regular. Individual caterpillars have been watched and found to ascend the tree to feed from seven to eight o'clock at night, and to return to the same hiding place that they previously occupied the following morning between four and five o'clock. It has been noticed also that if a tree presents no suitable hiding place, such as very rough bark or hollows in the branches or stems, the caterpillar usually descends to the ground to hide under rubbish and other convenient shelter around the base of the tree. To take advantage of this habit, a band of burlap eight or ten inches wide is

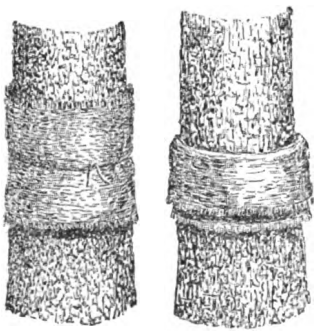

Fig. 2. BURLAP BANDS.

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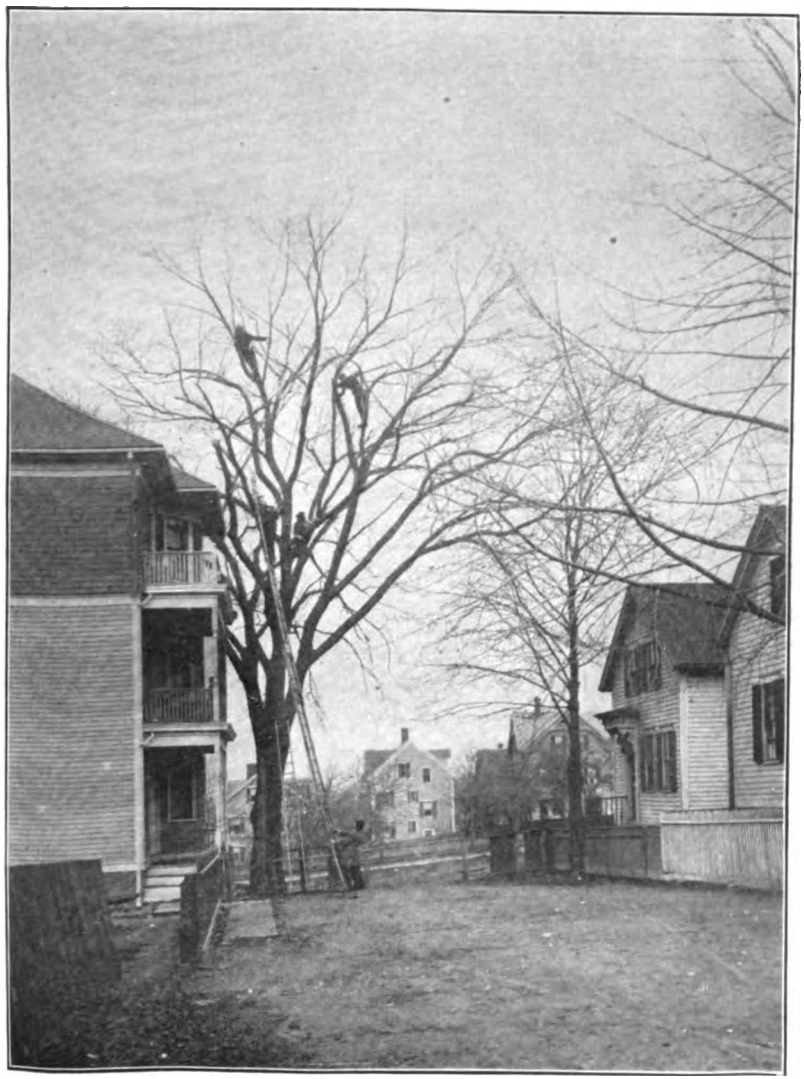

PLATE IX.

An illustration of how the men have to climb through the tops of large elms in order to search for and destroy the egg clusters of the gypsy moth.

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tied around the tree about four feet from the ground, or lower if necessitated by the presence of branches below this height.

The method is for the workman to carry over his shoulder a roll or loose bundle of the burlap already cut to the desired width. In coming to a tree he passes the end around the tree until the cloth laps a few inches. The required quantity is cut off from the rest of the bundle and a stout string is passed around the tree along the middle of the band and tied. The upper part of the burlap band is then folded over the lower. The appearance of the burlap and the operations as described are illustrated in Plates X, XI, and Fig. 2.

When the caterpillars have reached the state when they begin to descend to these burlap bands for shelter, men are sent around once a week, or oftener if the insects are plentiful, to raise the bands and destroy the caterpillars found underneath them. The destruction is accomplished, if the caterpillars are few, by cutting them in two with a knife, or, if numerous, by crushing them with a small wooden spatula.

The burlapping method is very efficient, and a prominent Massachusetts worker is quoted as saying that, if extermination should be arrived at in that State, the last caterpillar would be caught under a burlap band. In order that the burlap work shall be effective all other hiding places in the trees must be done away with. Holes in the trunk or branches must be filled up; loose bark removed; and broken, hollow, or ragged branches must be sawed off close to the stem. If the tree is an old one or otherwise has very rough bark, in the crevices of which the caterpillars can find hiding places, it is sometimes necessary to remove the rough exterior by scraping the trunk and larger branches. In short, the tree must be thoroughly groomed according to the best rules of æsthetic care and pruning.

Owing to the large amount of work required to put on and care for the burlaps, and the expense of the material, this method is of practical application only on trees in orchards, ornamental and shade tree plantings, and in open woods, and is of no real value in tangled brush-land whether found in the woods or in ill-kept backyards.

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A fuller description of the various lines and methods of work which are supplementary to the principal methods of creosoting and burlapping will be discussed under the head of "Cleaning Work."

The presence of the burlaps on the trees in Providence occasioned not a little variety of conjectures as to their purpose and use. In spite of the fact that explanations were given in a bulletin issued during the summer and distributed through the entire infested district, and also by newspaper articles, a great many supposed that the bands of burlap had been treated with a poisonous substance which in some more or less mysterious way should kill the caterpillars when they came in contact with it. Others thought that the burlaps were designed as barriers to prevent the ascent of the caterpillars, and were very much chagrined, and probably commented on what they took to be a foolish procedure, when they noticed that the caterpillars sought refuge under the bands and had but very little trouble in passing over them to the foliage above. Many thought that they would improve upon the method used by the State and tacked the burlap bands to the trees, or painted them with tar, whitewash, or oil paints, all of which, as anyone who understands their use will realize, defeated the real purpose for which they were put on.

The burlapping work is essential, and in spite of the fact that a large share of the expense of an exterminative policy comes from the use of the burlaps, nevertheless, their efficiency, as already intimated, is such that it is essential to use them.

Spraying.

This method of combating, so common in the treatment of many other injurious leaf-eating insects, is of secondary importance in dealing with the gypsy moth because of its rather peculiar ability to resist the action of poisons. Experiments in the Massachusetts work have shown that a gypsy moth caterpillar can eat a quantity of poison which would usually destroy several caterpillars of other insects. Chemical analyses have shown that a gypsy moth caterpillar may

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PLATE X.

Photograph showing method of wrapping a strip of burlap around a tree and cutting it off with a knife.

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have a quantity of poison in his system sufficient to destroy any other insect and still be in good health and complete its metamorphosis. It has even been found that poison remains in the system of the insect while it passes through the pupa and into the imago form. Nevertheless, if spraying is used while the caterpillars are young, it will serve to materially check their numbers. Even at this time it is necessary to use a quantity of poison which is much in excess of that ordinarily employed, and the operation is therefore quite expensive. The plan of work this summer has been to use spraying only where there was danger of the trees being defoliated by the caterpillars, or where it was necessary to destroy as many as possible before they could be scattered to other sections. This was especially true where they were found around places where carriages and wagons were stored for short periods, or where street cars passed under or came in contact with the foliage of infested trees.

When spraying was first begun, ten pounds of lead arsenate were used per hundred gallons of water. This quantity was increased, as the caterpillars grew larger, until about fifteen pounds were used when the caterpillars were half-grown. It may be said in passing that lead arsenate was first used as an insecticide in the first Massachusetts campaign against the gypsy moth, and has been found to be the best spray remedy for the pest. No other poison can be applied to the trees in sufficient quantities to destroy the caterpillars without injuring the foliage to a considerable extent. Paris green, for instance, if applied of sufficient strength to destroy the gypsy moth caterpillars, would seriously burn the foliage of most of our shade and fruit trees, even with the addition of a quantity of slaked lime.

Certain rules and principles are kept in mind in the application of insecticides; one is, that the spray must be applied in a very fine mist-like form. This is accomplished by using a good, up-to-date Vermorel nozzle and a pump through which a sufficient pressure can be secured to thoroughly break up the spray as it passes through the orifice. It is essential that this pressure amount to from 75 to 125 pounds per square inch.

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Many ask questions as to whether the spraying of trees is no[t] le to poison the fruit, if they are fruit trees, or to deposit sufficien[t] the poisonous substance on the foliage and on the grass underne[ath] to be injurious to animals which may happen to eat of the foliage or grass, or even to fall off and poison people who may happen to be under the trees. A little reasoning will satisfy anyone that there is no danger to people from the distribution of the poison from the foliage. There is also no danger from poisoning by fruit which has been sprayed, unless possibly when the spraying has been done s[o] y before the fruit is ripe and ready to use. There have been a great many experiments made to determine whether there is enough of poison on the grass underneath sprayed trees to be injurious to cattle. One of the most convincing of these is mentioned in the report of the Massachusetts State Board of Agriculture in which a dairyman purchased the hay from an orchard which was sprayed several times during the season and fed it to his cattle. No injurious effects whatever resulted.

It is desirable to avoid spraying fruit trees while in blossom because it is liable to prevent the proper fertilization of the flowers, and because it is injurious to the bees which may visit the trees at this time.

Banding with Sticky Substances, Etc.

In some cases where trees have been cleared of insect pests and it is desired to protect them from re-infestation by caterpillars migrating from neighboring infested trees, banding of the trees with some sticky material which will act as a barrier is successfully practiced. This is also efficient in protecting trees from certain insects, notably the canker worms, which pupate in the ground, and the wingless females of which have to reach the foliage of the trees by climbing to deposit their eggs. It should be noted, however, that much of the banding which one notices on trees throughout the country is a waste of ti and money because no insects are present against which the remed[y] is useful, and because the method is such that it would be inefficient in any case.

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PLATE XI.

Photograph showing method of tying the burlap strips on the trees. The knot is about to be completed.

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Among the substances used are coal tar, printers' ink, raupenleim, wagon grease, tanglefoot, soft soap, and sticky fly-paper. There are also various forms of mechanical contrivances including cotton and wool waste bands, designed to catch or prevent the progress of ascending insects. Among the sticky substances, coal tar, printers' ink, and wagon grease should not be applied directly to the bark. When utilized they should be applied to a strip of tarred paper or other impervious material wrapped around and tacked or otherwise fastened to the tree. In order to prevent the insects from crawling under this band it is necessary to either smooth off the bark underneath or else apply a band of waste cotton or other material which will fill up the crevices in the bark. Sticky fly-paper lasts but a short time and is of but little use unless the bark is smoothed over underneath the band or a layer of cotton is placed underneath as indicated above. Raupenleim (caterpillar glue) is a German preparation similar to tanglefoot which is made in this country, but not so safe to use as it is more likely to injure the trees. The last-mentioned substance is the best and cheapest remedy on the market. It can be applied directly to the bark with little if any danger of injuring the tree. It is customary to smooth the bark, if very rough where the band is to be placed, to save material, and to apply with a comb-like instrument having flat, flexible teeth. A flat, wooden spatula can be used for applying the material, if the special instrument is not at hand.

Mechanical contrivances made of tin, zinc, and copper are sometimes seen, but their use is restricted and is seldom advisable on account of the large initial expense of putting them on, and the close watching which they must have to see that they do not injure the trees or fail to afford the protection desired.

GENERAL CLEANING WORK.

In addition to creosoting, burlapping, and spraying, a large amount of general cleaning work is necessary. A campaign for the extermination of the gypsy moth is hindered by the presence of rubbish, ill-kept fences and outhouses, and decaying, ill-pruned, and poorly

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kept trees. In fact, the gypsy moth is favored by just such conditions as our civic improvement societies are deprecating in their campaign for better, cleaner, healthier, and more beautiful cities and towns. If its presence, then, can make our property owners realize that they must improve the conditions of their premises according to the principles of the civic improvement ideas, it will be a slight recompense for the vast amount of trouble and outlay which its presence entails.

Ground Work.

Under this term are included searching picket and board fences, stone walls, shrubs, weeds, rocks, foundation and other parts of buildings, rubbish, and, in fact, objects of every conceivable kind, for the presence of egg clusters of scattered insects. It also includes the gathering and burning of rubbish, burning over brush-land, etc., for the purpose of destroying the egg clusters or caterpillars of the gypsy moth.

It may be of interest to note in this connection that this process of burning must be intelligently directed. Burning over brush-land in the winter time is of but little avail, as the fire which can be produced is not of sufficient intensity to destroy many of the eggs. By experiments in Massachusetts it has been found that egg clusters on rocks, to which sufficient heat had been applied to crack them, have partially escaped destruction. It is therefore necessary, except in cases where a great deal of combustible material together with egg clusters can be gotten together in a pile, to burn over the ground shortly after the insects have been hatched. This applies also to "firing" stone walls. For some of this work an apparatus for burning crude oil and producing an intense flame, such as illustrated in Plate XXI, can be applied to advantage, and it will be necessary for the State to procure some of these for the work next spring.

In connection with this work it may be well to call attention to the fact that the depositing of rubbish and refuse of all kinds should be thoroughly controlled with a view of placing it where it would be

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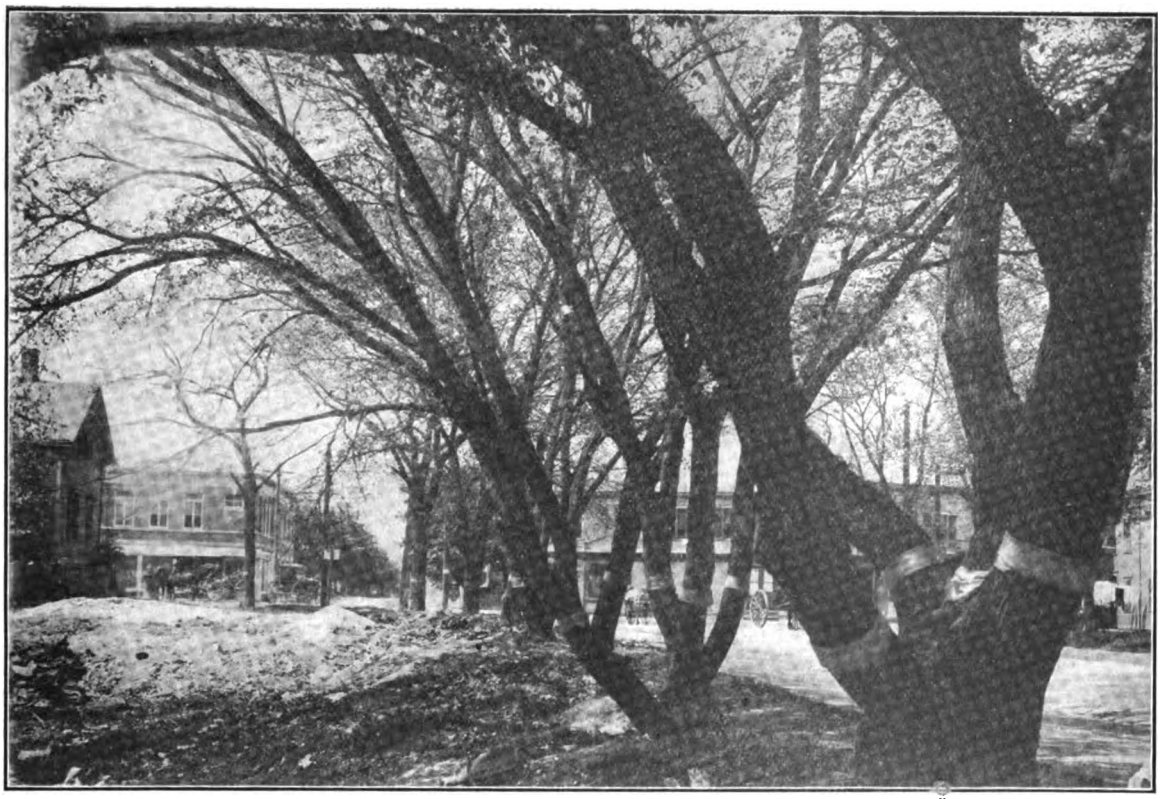

PLATE XII.

Photograph showing burlap bands around trees. Many of the trees illustrated have branched trunks, and in such cases it is necessary to put a strip around each large branch.

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of the least menace in providing a harboring place for the gypsy moth. Specified dump heaps should therefore be designated in different parts of the city. These should be kept clear of trees and shrubbery on which the gypsy moth can feed, and all rubbish should be carted to these places. In some of the rubbish heaps gone over in Providence this year, stovepipes, tin cans, old carpets, old shoes, discarded boxes and birdhouses, have been found more or less plastered with the eggs of the gypsy moth which have come from neighboring trees and sought hiding places in them.

The Care of Trees.

There is in our State a very commendable love of trees, and many of the Rhode Island estates, streets, avenues, and roadsides are planted or lined with magnificent elms and other trees which bear evidence of the practical results of this sentiment and are well worthy the pride that is taken in them. That this love of the beautiful in trees and plantings has not as yet become wholly subservient to intelligent and rational direction is occasionally sadly in evidence. Trees which have every advantage of suitable soil and location and which are fully capable of maintaining a healthy growth in our climate are rotten at the core, infested with borers and other insects, unsymmetrical, and often ready to fall over and cause damage to neighboring property, or even injury to persons in passing, at the onslaught of the first strong wind. The reasons for this are manifold, but the principal ones are unintelligent or careless pruning and its many undesirable consequences, hacking off limbs by men stringing electric wires, neglect of wounds caused by pruning or the accidental breaking off of branches, the barking of trunks by the gnawing of horses or by wheels and whiffletrees of carriages in charge of careless drivers. Whatever may be the injury, dire consequences to the tree result and render it liable to speedy destruction by borers and other insects and by plant-destroying fungi and bacteria.

The overcrowding of trees is another condition which interferes with their fullest development, and therefore with the best effect of

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the plantation in which they are placed. We frequently see along our streets three or four trees crowded into a space which should be occupied by one or two, and the same is also true of many private estates. The result is too dense a shade, an undue struggle for light and air among the tree-tops, and finally, the gradual decline and death of the weaker trees and an unsymmetrical development of the remainder.

From the standpoint of our work against the gypsy moth these conditions present various problems. The weakened trees seem to invite the attack of all kinds of insect enemies. The mutilated and hollow branches and trunks afford excellent hiding places for the caterpillars of the gypsy moth and defeat the purpose of the improvised hiding places put on in the form of burlap bands. The insect lays its eggs in the cavities and hollows of these trees and sometimes renders it absolutely impossible for the workers to find them in the fall and winter for the purpose of creosoting them.

The superabundance of trees in various places and the presence of crippled and diseased trees increases not only the difficulty of cleaning and spraying, but also adds unnecessary expense. Our workmen come across some tree on the lawn or in the yard which is all but dead. It is badly decayed, its trunk and branches are infested with borers, and it barely maintains life and leaf-surface enough to sustain a few such pests as the gypsy moth—and this pest finds a safe retreat in the hollow trunk and branches of such trees from which it is next to impossible to eradicate it. Again the men find a street tree crowded by its neighbor, barked by horses and passing vehicles, diseased and borer-infested like the other, and barely able to send a single dilapidated branch where its leaves can get air and sunlight. Such trees ought to be cut down, but right here is where we encounter difficulties due to the tree-loving sentiment which has already been mentioned. These trees have grown to be almost a part of the grounds and the homes upon them. Their history is entwined with many recollections and associations, and people refuse to have destroyed trees which needlessly add many dollars to the

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PLATE XIII.

This photograph shows the large amount of work and the heavy expense of burlapping vacant lots which are covered with a tangled mass of trees.

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expense of the gypsy moth campaign. Many useless trees must therefore be repaired, so far as possible, as well as those that are worth the expense. Hollows and cavities must be covered up with zinc patches to prevent the caterpillars from hiding in them, or to prevent caterpillars, from eggs which may be laid in them, from emerging. Ragged, rotten stumps of branches, monuments of the pruner's ignorance or carelessness, must be sawed off; rough bark must be removed, and miscellaneous other work, too varied to mention in detail and yet necessary for the repair or proper grooming of the trees, must be done in order that a thorough campaign against the gypsy moth may be carried out.

The much discussed individuality and independence of the Rhode Islander also comes into evidence at times, largely through a misunderstanding of the work. One man orders our workmen off his premises because he says there are no gypsy moths present. Another says he is not going to have the homely rags (burlaps) on his trees. If the pests come on his premises he is perfectly able to deal with them and will do so in his own way. Commendable as this spirit is in many cases, it interferes radically with our campaign. If the work is delayed until the average citizen becomes aware that the gypsy moth is present, the insect may have gotten such a strong foothold that it is difficult to eradicate. Scores of people were very much astonished this summer when they were told that they had colonies of gypsy moths of one or more years' standing on their premises. Again, the methods used by the State are such as have been found to be the most efficient by ten years' work and study in the Massachusetts campaign, and unless the property owner is willing to follow these, he is liable to waste his money without perhaps accomplishing the extermination of the insect.

In a great majority of cases, however, a desire to help the work along takes a form which is of the utmost value to the purpose in view. Nearly every property holder in the city, when our men have come around, has been more than willing to give every assistance in his power, and the State has been saved a great many dollars

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throughout the summer by the very kind and cordial help which has thus been given to the work.

When this cleaning work is being performed the men are required to creosote all the egg clusters found, and this operation of course saves some future labor. It may also be said that a great deal of this repair of trees is of great value in improving street and lawn plantations, and it would perhaps not be regarded as oppressive if part at least of the expense, equivalent to a portion of the value of the improvements which ensue, were charged to the city or to the individual on whose property the trees may be located. In this way some additional funds could be obtained for what will otherwise seem very expensive and difficult work.

All this work requires excellent supervision and good workmen, and for some of the larger trees, expert climbers are necessary. Quite a supply of tools, ladders, repair materials, etc., must also be provided.

The Work in Rhode Island in Brief.

The appropriation under which the campaign for the suppression of the gypsy and brown-tail moths has been carried on became available at the close of the last session of the General Assembly, the latter part of April. The writer received his appointment to take charge of the work April 25, but on account of previous engagements could not start active operations until the 27th. Plans, however, were considered at once, and as soon as possible a trip was made to Boston for the purpose of conferring with Supt. Kirkland regarding the methods of work which were to be pursued. It was recognized that one of the first essentials was to secure a man to act as foreman and to have immediate charge in the field, who should be thoroughly acquainted with all the forms of the insects and with the different lines of work which had been found efficient in suppressing or exterminating them. On the recommendation of Mr. Kirkland and of Mr. Rogers, Mr. John Sweeney of Woburn was secured. Mr. Sweeney has had nearly ten years' experience in the work in Massachusetts,

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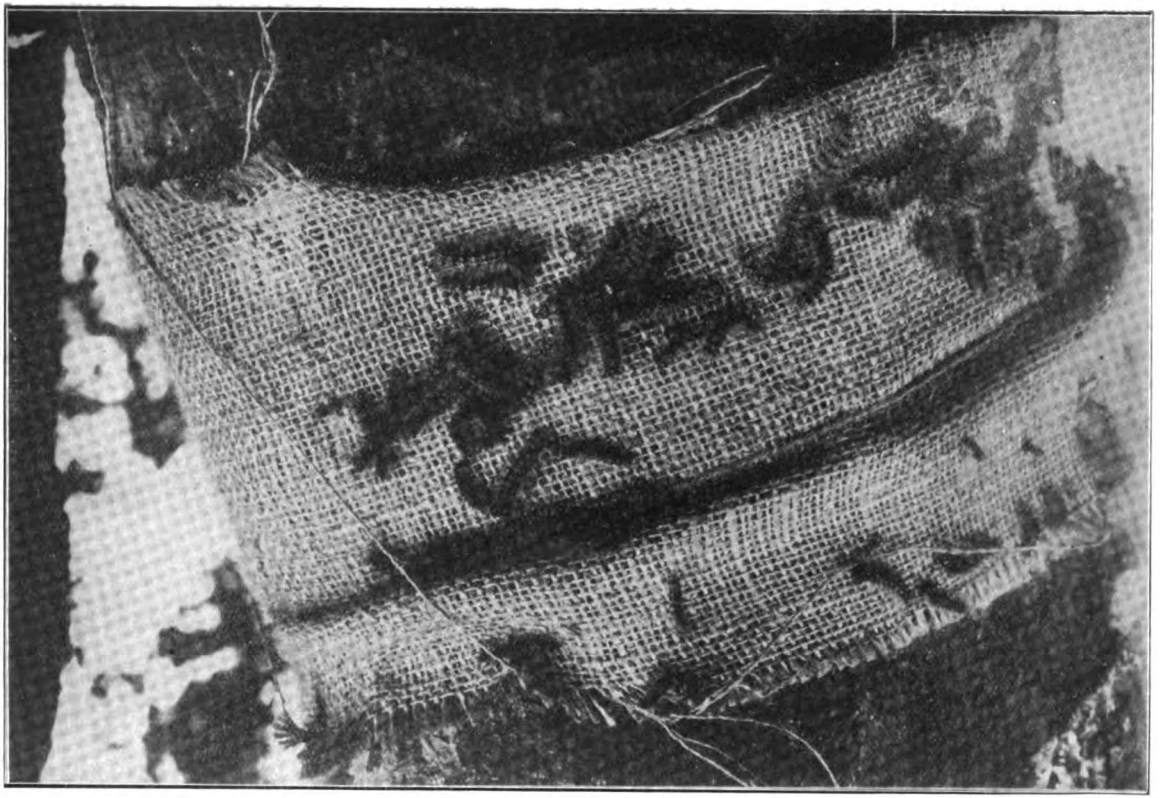

PLATE XIV.

An illustration to show how the gypsy moth caterpillars cluster underneath and between the folds of the burlap bands placed in the trees.

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and last year was sent to New Hampshire to scout the infested territory of that State for Professor Sanderson, who is in charge of the work.

During the latter half of April the Park Board had made a small appropriation which they placed in the hands of Supt. Fitts of the park system. Mr. Fitts placed a number of men under the charge of Mr. C. Abbott Davis, Curator of the Museum, who has taken quite an active interest in the agitation for the suppression of the insect. Mr. Davis and his men hurriedly went over the district in the Elmwood section north of the park, and one or two other places in the city, to creosote the egg clusters. In this way a very large number of egg clusters were destroyed, but on account of the hurried nature of the work and the inexperience of the men only a part of the clusters present were destroyed, and plenty of the caterpillars appeared throughout the section during the summer.

One of the greatest difficulties at the beginning of such work as was to be undertaken is to obtain the men necessary for carrying it out. The ordinary workman has but a very faint idea of the methods to be employed and of the necessity for being thorough in his work. Fortunately, when the State funds became available, the men whom Mr. Davis had had were turned over for the State campaign, and arrangements were also made with Messrs. George Johnson & Son, florists, and Mr. Edward Armstrong to furnish a certain number of men and to take charge of limited districts of the infested territory. These parties had had considerable experience in the past in treating the gypsy moth for private parties, and some of the men whom they furnished also had had a little experience in the work to be undertaken. The wisdom of securing a foreman trained in the methods of work and in how to look for the moth in all its forms at once became apparent. Sections of the city which were supposed to be free from infestation were found to have moth colonies of two or more years' standing, and when less experienced men would pass a section as containing but a few egg clusters, large and healthy colonies of the insect would be found.

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It was soon discovered that the most complete report available at the time fell far short of indicating the full extent of the infestation or the seriousness of the situation. It was realized almost from the beginning that the $5,100 appropriated by the General Assembly would not be adequate to much more than keep the insect in check throughout the infested region, and possibly to reduce it in numbers in some of the worst infested places.

The work as planned may be separated into two lines: One was to destroy as many of the caterpillars as possible through the direct work under the State appropriation; the other, to educate the people of the infested district, and also of the State, by furnishing information regarding the presence of the pest, how to identify it, and how each individual citizen could help in the work.

For the destruction of the moth, creosoting the egg clusters has been found to be the most economical method. At the time the appropriation became available, however, the eggs had been hatching for ten days or two weeks and there was but very little time left in which to attempt to destroy the insect in this way. Some effectual work was done, nevertheless, and the insect was somewhat reduced in numbers in some parts of the infested territory.

The next best method of dealing with the insect is that of burlapping the trees. Plans for this work were immediately gotten under way, and before the end of the season it is estimated that between sixty and seventy thousand trees were provided with the burlap bands. Approximately 45,000 yards of the burlap strips were used, and for several weeks during the height of the caterpillar season it took thirty men to go over the burlapped section to destroy the caterpillars which were found under the burlaps. Approximately twelve square miles of Providence territory were covered in this work. As the season advanced more and more infested territory was found, and since the cleaning work has been carried on in cooperation with the Department of Agriculture at Washington during the late summer and fall, the known infested territory has more than doubled.

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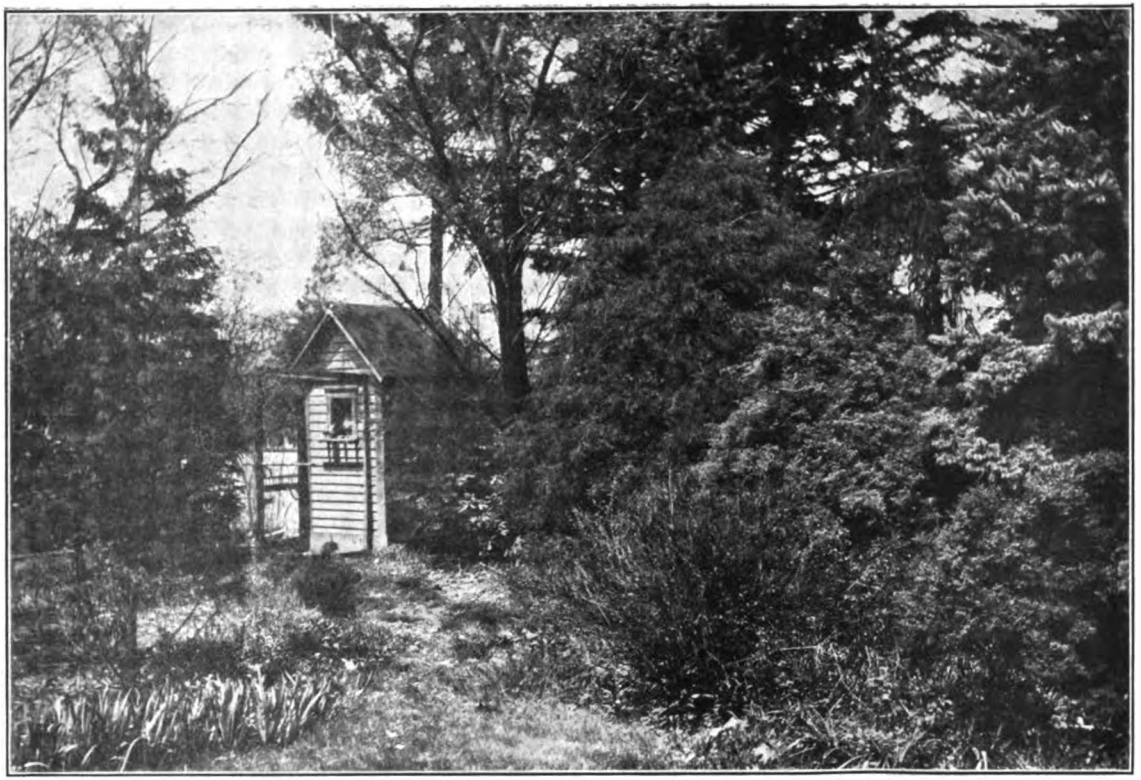

PLATE XV.

A backyard containing deciduous and evergreen trees, herbaceous plants, and a number of wooden fences and outhouses which give the gypsy moth plenty of opportunities to hide its egg clusters and render it very expensive to eradicate the insect.

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One of the objects which was ever kept in view was to prevent the moth from spreading to other uninfested sections. For this purpose, and also to prevent defoliation, a number of very badly infested trees were sprayed in different parts of the city. Owing to the smallness of the funds at hand, property owners were requested to spray the trees in their yards when it seemed necessary, the State taking care of the street trees. Such requests were cheerfully complied with except in a very few cases where parties could not well afford to go to the expense of hiring the work done. Special attention was paid to trees on the street from which there was danger of the caterpillars spinning down on passing vehicles, and in the vicinity of ice-houses, livery stables, lumber yards, and places in general where a great deal of teaming is done, and where vehicles of various kinds are sometimes left standing until there is danger of their having caterpillars on them which could be carried to uninfested sections of the city.

While this work was going on a bulletin descriptive of the gypsy and brown-tail moths and the methods of fighting them was being prepared, and in May an edition of ten thousand copies was printed. This bulletin was distributed freely in the infested sections of Providence and to a small mailing list covering the whole State. Articles for the press were also prepared explaining the nature and extent of the infestation; the character and appearance of the insects and the methods of work to be used against them. In this newspaper work a number of other people took part and usually furnished information which was timely and correct and not designed to mislead the public. Occasionally, however, something would be sent in which was flagrantly incorrect, or only partly true and designed to mislead the readers both as to the work done and as to the extent of the infestation. It is a pleasure to record that the statements in this line, statements in fact which none but the most ignorant would credit, found no acceptance with any of the Rhode Island newspapers, so far as the writer knows.

A large share of the appropriation having been used up by the end

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of July, a plan for co-operating with the United States Department of Agriculture was arranged with Mr. Rogers, the New England representative of the National Bureau of Entomology, whereby he was to take over the men which the State had had to his pay-roll, and whereby the State should furnish the tools and materials necessary for prosecuting the cleaning work which would begin in August and continue for the remainder of the season. Since that time from twelve to sixteen men have been steadily at work in the infested regions of Providence. The burlap bands were removed and burned; egg clusters have been searched for and creosoted; rubbish has been cleared up and burned; brush-land has been cut over; dead trees have been cut down; hollow trees have been repaired by placing zinc patches over the openings. In this way it is hoped that the number of insects for another year will be greatly decreased; and where opportunities have been given for thoroughly cleaning up rubbish, destroying old trees, and repairing those that could be saved, the work for another year will be reduced and simplified. For a fuller account of the United States work see letter from Mr. Rogers on page 67.

With the assistance of Professor John Barlow of the College, who has very kindly and efficiently aided in some of the entomological work, large exhibit cases, one each of the gypsy and brown-tail moths, were prepared and sent to the county fairs at Portsmouth and West Kingston. In order to more fully acquaint the people with the appearance of the gypsy moth, specimens of the various stages, from the egg through the caterpillar, pupa, and adult or imago form, both male and female, have been secured, and from these Professor Barlow has prepared a number of life history mounts in Riker cases. One of these life history mounts will be sent to every library in the State, and the librarians have already assured us that they will be placed in conspicuous positions where they can be readily examined by anyone interested. A number of excellent lantern-slides have been secured, and the writer is prepared to give illustrated talks on the gypsy and brown-tail moths and their history in this country. In addition, a

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PLATE XVI.

Cut showing an infested apple tree in a wood-yard. Such places are prolific sources of gypsy moth distribution.

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cardboard poster, 11 by 14 inches, has been printed. This gives photographs of some of the important stages of both the gypsy and brown-tail moths, with suggestions for fighting them. Two thousand copies of this have been printed and it is planned to send one to every public school, post office, railroad depot, and to public offices or places in the State where they are likely to be hung up and attract attention. It is hoped in this way to so thoroughly arouse the people to a knowledge of the necessity of being on the lookout for the insects, and of reporting them when found, that we shall, before the end of another year, know every place where the insect occurs and be able to deal with it in a thorough manner.

In the investigation of reports of the presence of the gypsy and brown-tail moths much time was spent and scores of places were visited, but in no case, except where the report came from the vicinity of Providence, was either of the pests present.

In the expenditure of the funds it was ever kept in mind that every dollar possible should be spent in actual work against the insect in the field and in sending out such information as should best acquaint the people of the State with the problem before them and how each individual could help meet it. For this reason an office in Providence was dispensed with and the office facilities of the Extension Department at the Rhode Island College were utilized. Many other minor aids in prosecuting the work were dispensed with for the same reason.

No technical or experimental study or work has been attempted for two reasons: first, that already mentioned, that the money was needed for actual field work; and, second, such work has been thoroughly prosecuted practically under conditions similar to ours in Massachusetts and is still being continued in that State, so that there has been no immediate need of any special efforts in that line in Rhode Island.

The following summarized account of expenditures will give an idea of the different ways in which the funds have been expended and total amount used. It will be noted that a small part of the appropriation is still available, and this is held subject to use in providing

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tools and material according to our arrangements with the United States authorities.

Labor	$2,960 03
Tools	121 68
Burlap and twine	515 62
Paint, creosote, etc	24 05
Badges	16 20
Express, freight, and draying	42 20
Repairs (tools and carts)	7 90
Store house	30 00
Educational work,—printing, photographing for bulletins, circulars and reports, etc	381 93
Office expenses, including telephone, telegraph, office furniture, stenographer, and stationery	167 34
Postage	12 20
Traveling expenses of Sweeney and Polk	32 69
John Barlow, preparing exhibits and life history mounts, and traveling expenses	60 75
Riker mounts and extra specimens for life history mounts	16 88
A. E. Stene, expenses, including meals, electric and railway fare, stage and hotel	136 36
	$4,525 83

Results of the Past Season's Work.

It is safe to assume that in the territory which was burlapped by the State during the past summer, and which has been gone over again this fall and winter by the men under the direction of Mr. Rogers, the number of insects has been very much reduced. It is probable that in this district there will not be enough insects left another year to seriously injure or even partially defoliate any of the trees. In fact, it was found that where, through the State work during the summer, trees were both burlapped and sprayed, few, and in one case no egg clusters were found by the men who went over the ground to do the creosoting. Through the burlap work also the presence of the insect was discovered in a great many places where no one suspected its presence. In the work conducted by Mr. Rogers during the winter, an area more than twice as large that bur-

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PLATE XVII.

The remnants of an old orchard infested by various kinds of insects and plant diseases, and now of no practical benefit. As it stands, it is merely a harboring place for various insects and fungi, and especially for the gypsy and brown-tail moths. It gives no revenue and should be cut down in short order.

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lapped last summer has been gone over to creosote the eggs and to clean up rubbish and to prepare the trees for next summer's burlapping. It is probable that this work also has reduced the number of possible caterpillars very greatly, but it is also probable that the insect has been overlooked in some places, and we must rely on the burlapping next summer to discover them.

In all the work of the year a close record of the work done and the places found infested has been kept so that we may know where to look for the caterpillars and egg clusters another season. It is also to be hoped that through the educational campaign which has been conducted during the past summer, people throughout the State have become thoroughly alive to the problem which this insect pest presents. In fact, instances of this interest have been evident throughout the summer. As has already been noted, a large number of insects has been sent in for identification. It is probable that in a great many cases where insects have been sent to us the people knew that they were not the gypsy moth, but an interest has been aroused in entomological study in general, and people are beginning to look about to learn more of their friends and foes in the insect world. This is as it should be, and may be put down as one of the few beneficial results from the presence of such a pest as the gypsy moth. Professor C. L. Marlatt of the Department of Agriculture at Washington has made careful estimates of the injuries of insect pests, and has found that they take annually a total of $600,000,000, or an average of ten per cent., from all the various crops which the farmer raises, to say nothing of the injury which they do to forest crops and to ornamental plantations. What other cause is there that produces a loss of ten per cent. in the income from various products which would receive so little study as insect pests have! The ignorance of the people in regard to insects occasionally amounts to a gullibility such that they are sometimes ready to buy the most absurd nostrums or pay for the application of the most useless remedies. Note the perennial bobbing up of the agents who have preparations with which all kinds of insects may be destroyed by simply inserting the remedy in a hole bored

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in the tree, or the fact that the man who advertised a useless trap lantern, warned against by every experiment station in the country, became wealthy through its sale.

It is believed also that people generally take a hopeful view of the situation. There are a few perhaps who say, hopelessly, "What is the use of trying to fight the insect pests? They seem to appear more numerously each year, and even if a campaign against them can be prosecuted by one person, his neighbor will take no care of his crops and will thus propagate the pests." Or it is said that "the State may prosecute this work for a year or two and then drop it, and one might as well let the bugs have the trees first as last." A great majority, however, have offered to do all they can to help the matter along and to help take care of the trees on their own property. Such aid, of course, has been very gratifying as the State funds would otherwise have been entirely inadequate to keep the moth in check the past season.

The Probably Future Status of the Insect.

It may not be possible to predict accurately what the future status of the gypsy moth will be, should the work against it be dropped at the present time. It is reasonable to presume, however, that we ought to be able to judge something of its future by its past record since it was introduced into this country. The writer has no desire to magnify the disastrous results which will follow its unchecked propagation and spread in the State, but the following statements can readily be verified by anyone who will read the history of the insect in Massachusetts. This report has already related how the Massachusetts State Board of Agriculture fought the insect from 1890 to 1900, and while the appropriations were inadequate and did not always come at the time when most needed, the insect was so reduced in numbers and in the extent of territory infested that the people began to fancy themselves secure from future depredations and stopped the appropriations. Five years later they realized their mistake. The insect had again increased until it had become a

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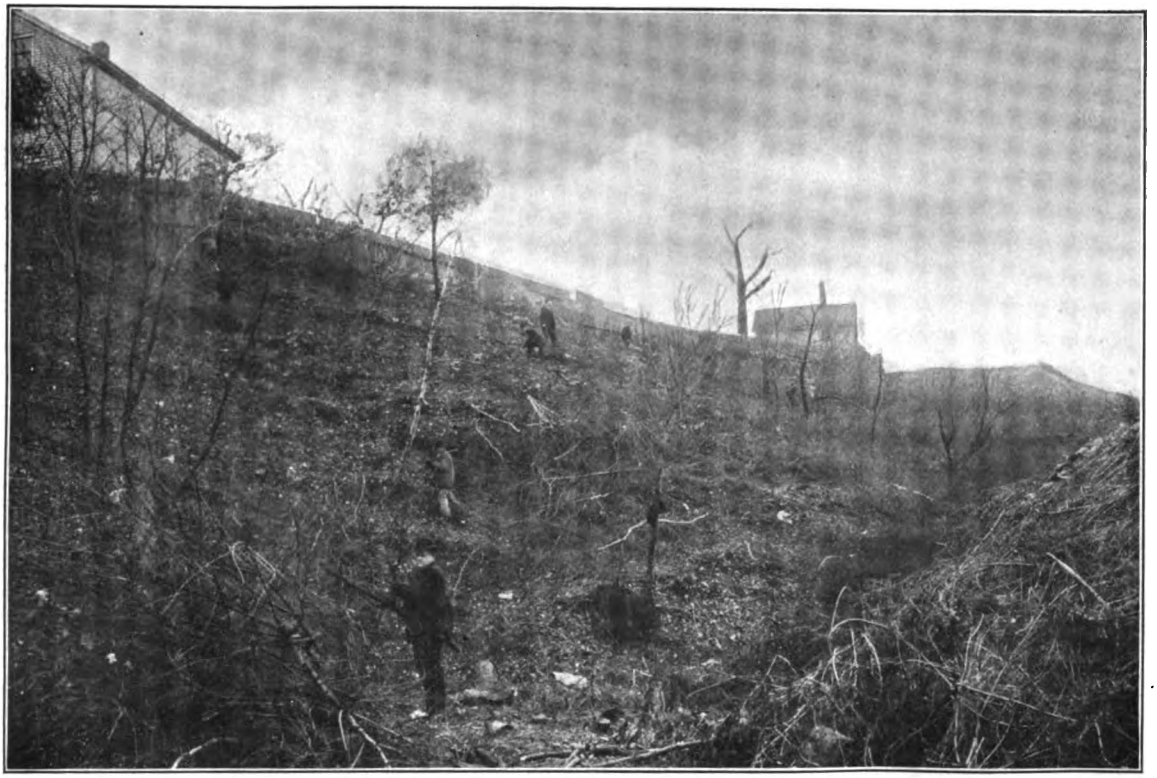

PLATE XVIII.

A tangle near the railroad tracks and freight yards at Olneyville. This was badly infested with the gypsy moth and had to be thoroughly cleared and burned over.

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plague as serious as it was before the work against it commenced. Appropriations were again called for. The work was renewed and inspections soon revealed that the insect had not only increased to its former proportions in places where it had formerly been located, but, worst of all, it had spread over an area eight times the size of that previously infested, or an area equal to more than twice that of Rhode Island. By the aid of State and local appropriations amounting to three quarters of a million dollars the pest is now being held in check in thickly settled localities, but it is impossible to deal with it in woodlands and large parks, and hundreds of acres of such lands have been stripped during the past two years.

In Rhode Island we have as yet only a comparatively small area infested, but the colony is remarkably healthy and the area infested is large when we consider that the insect has been in the State not more than seven or eight years. If left unchecked, all possible evidence from its past history in this country points to the probability that it will only be a few years before the insect will have spread over the entire area of the State and westward into Connecticut. It will then be intrenched in some of our waste woodlands, where no money which the State will be able to raise can dislodge it. Individuals will then have to fight it at great expense, and our cities and towns will have to appropriate large sums of money to keep it in check in order to preserve the shade and ornamental trees and the parks and gardens. The aggregate of such appropriations and expenses for each year will undoubtedly be far greater than that now asked for with an exterminative policy in view, to say nothing of the personal loss and discomfort which our citizens will experience.

There is a hope for relief from parasitic enemies, but this is as yet only a hope. The insect has been in the country for thirty-six years, and none of our native parasites has been found able to keep it in check, and therefore but little can be expected from them. An effort is being made to introduce parasites from its native habitat, but whether these will successfully establish themselves is still entirely uncertain. And should they fail, our State would indeed be in

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a serious predicament if it ceases to fight the gypsy moth now with the idea that parasites will keep it in check. The most hopeful of our entomologists say that it should be possible to establish the European parasites here, but whether that happy circumstance will be five years from now or a hundred years, it is absolutely impossible for them or anyone to predict.

Discussions as to the Future Policy of the State in Regard to the Gypsy Moth and the Need of Appropriations.

There seems to be almost a unanimous feeling throughout the State that something must be done to check the pest. There is some question as to whether a policy of suppression or one of extermination should be followed. The concensus of opinion of nearly all experts who know our conditions, as will be noted from their letters on pages 64 to 73, seems to be in favor of extermination, and from the experience and observations of last summer the writer is thoroughly in favor of this policy. The principal arguments in favor of extermination are, briefly, as follows: It will be far cheaper in the end. The area infested is still comparatively limited. Most of it is residential and therefore quite easily taken care of, and little of it is in tangled woodlands, where the insect is dislodged with difficulty. The State is some distance from the infested territory in Massachusetts, and can, therefore, be protected from reinfestation. The State of Massachusetts and the United States Government are pursuing a policy which should prevent its spread from Massachusetts, or reduce the possibility thereof to a minimum. Other States, notably Maine and New Hampshire, expect to follow an exterminative policy, and they are not so favorably situated as we are. It is the surest way of preventing the spread of the insect throughout the State.

The only arguments in favor of a policy of suppression are that it is easier to pursue and cheaper for the immediate future. According to the estimates of Supt. Kirkland, an exterminative policy will cost perhaps twenty-five per cent. more than one of suppression. It is possible that later parasites will keep the insect in check. In reply

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PLATE XIX.

An illustration in the same territory as that given in the previous picture. This has been used as a dump, and many of the tin cans which are shown in the picture have from one to a dozen egg clusters of the gypsy moth within them. This is one of the most difficult places to deal with as the cans and rubbish must be raked together and the whole covered with oil and set afire. Even after this it must be closely watched, because a great many of the egg masses of the moth will not be destroyed even by intense heat.

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to the latter argument, the reader is referred to the letter of Dr. Fernald quoted on page 65. It will be noted from this that we can have no definite assurance that the parasites can be established, and even if they are we can hope for no better conditions than those of Europe, where periodical outbreaks occur which result in great loss and discomfort to the sections invaded. The only other argument against the policy of extermination, and the one which may after all be the hardest to overcome, is that sufficient appropriations cannot be obtained to pursue the policy to a successful termination.

It may be asked whether a policy of extermination is practicable. In the reports of the gypsy moth work in Massachusetts we find accounts which show that many places were entirely cleared of the insects during the campaign which was carried on from 1891 to 1900. Lessons may also be learned from other countries with different insects. For instance, the potato beetle which is such a pest in this country has been repeatedly imported into Europe, but on account of the vigilance of the authorities there the writer is not aware that it has gotten a foothold anywhere. An article in one of the bulletins of the Department of Agriculture at Washington relates how at one time a small area in England became infested with the potato beetle. The authorities at once took the matter in hand, and by very heroic, and what seems to us very expensive methods also, the beetle was exterminated in two years. Accounts of similar experiences in Germany are related, and one man told the writer that in his boyhood days a colony was found in the neighborhood in which he lived. The authorities at once took charge of the matter and offered the school children a sum of money for bringing in the beetles. In this way, and with other methods which were used, the beetle was entirely exterminated in a very short time.

The Appropriation Needed for Another Year's Campaign.

On the recommendation of Supt. Kirkland, committees representing the Rhode Island Horticultural Society and the League of Im-

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provement Societies in Rhode Island are planning to ask for an appropriation of $25,000 for the work. As this will undoubtedly seem to a great many an excessively large sum, it may not be out of the way in this report to give some of the reasons for such an increase of appropriations over that of last year.

The appropriation of $5,100, made at the close of the session of the General Assembly last spring, was fairly adequate for a policy of thorough suppression in the territory which was then known to be infested with the insect. It was entirely inadequate for the area which was found to be infested when the work was taken up, and while by rigid economy a larger territory than that originally known was gone over, it may be said that the work was scarcely more than sufficient to check the insect. The funds also lasted only until the first of August. After that the State has only provided money for educational work and for furnishing tools and materials to co-operate with the United States, which has supplied nearly all the funds since that time.

Another year a territory three times as large, and perhaps more, must be gone over, and the work should be much more thoroughly done than was possible this year. As the work increases in thoroughness it will become more and more exacting and the best men will have to be obtained, and this will necessitate slightly higher wages. This need of men who are of good character, and who will take pains to acquaint themselves with the work and to be conscientious and thorough in its execution, can not be overestimated. Inexperienced or careless men will often overlook a sufficient number of insects which, when allowed to propagate, will produce enough caterpillars to seriously injure the neighboring trees or spread the insect another year. Several foremen will also be necessary, and these must have a thorough knowledge of handling men and of the gypsy and brown-tail moths, and of methods of dealing with them, together with some general entomological and botanical knowledge, in order to be able to carry out intelligently directions from the Commissioner in charge. In short, the employment of men who know the business in hand

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PLATE XX.

A discarded bird house, old stove-pipe, tin can, and a piece of carpet, from a dump heap in Providence, all more or less covered with egg clusters of the gypsy moth.

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and have experience need not be further urged upon those who know how easily much money may be squandered uselessly through the ignorance and lack of judgment of those who execute the orders as well as those who have the work in charge. Such men are worthy of, and should have, honest and fair wages, and the State can not afford to treat them otherwise.

As will be noticed by the financial report, the burlap work has taken a very large part of the appropriation. This work should be repeated more thoroughly another year over an area fully three times as great. All the labor in cleaning, in creosoting egg clusters, and in scouting has been paid for this fall and winter by the United States Department of Agriculture, and it has spent a sum about equal to that which the State has used, making a total of nearly $10,000 spent up to the present time. We will undoubtedly obtain some help from the Department of Agriculture, if it secures the appropriation asked of Congress, again in the future, but new territory is being found in New Hampshire and Maine which will require its attention. By the terms of the Federal act, the United States work should be devoted largely to quarantine measures, leaving the suppression and extermination to State efforts. Furthermore, if reference be made to Dr. Howard's letter, on page 64, it will be noted that the expenditure of Government money depends to some extent on what each State does for itself.

It will be realized from this that we shall need three times as large an appropriation for the burlap work alone. In this connection it may be well to note that the expense of burlapping will be nearly as great in a place where but few caterpillars are found as where there are many. There are also various kinds of apparatus, notably, spraying machines and cyclone burners, which should be provided for another year.

More thorough work should be done in spraying, cleaning, and other lines of the campaign, and it would be a good thing to take some section, somewhat isolated from the rest of the infested territory, and

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to test therein the possibility of rapid and thorough extermination of the pest by especially careful work with picked men.

A strenuous effort must be made to prevent further spreading of the insect, especially into our tangled woodlands. Some money must therefore be spent in a careful scouting from time to time along roadsides where automobiles, electric cars, and other vehicles are likely to scatter the caterpillars. Special care must be given to streets and places where vehicles are left standing near trees in the infested region, from whence the caterpillars may be carried. Close watch must also be kept of all material which may carry the egg clusters of the gypsy moth and which may be transported from the infested regions in the State or from Massachusetts. As people become more fully aware of the danger of the pest we may expect a larger number of reports of its presence, many, if not all, of which must be thoroughly investigated and their correctness verified.

Some of this work can be done by the Commissioner in charge, but he can not possibly do all, and he must have one or two inspectors with a good knowledge of the gypsy moth and a fair general entomological knowledge to assist in this work.

By a decidedly favorable vote of the people of the State at the last election, a large sum of money is to be expended in the establishment of a magnificient metropolitan park system for Providence and neighboring cities and towns. One of the established parks is now infested, and much of the land embraced in what is to be the metropolitan system also has colonies of the pest. Unless the moth is eradicated from these lands, some of the money to be spent for parks will be worse than wasted.

The educational campaign must be continued throughout the work. The people should be fully informed, through newspapers and through bulletins, circulars, exhibits, and lectures, of the nature of the insect; the territory infested; the progress of the campaign; and what each individual can do to help in the work. It is absolutely essential that the people shall have a full knowledge of the nature of the pest and how to identify it, in order that any new colonies may be quickly dis-

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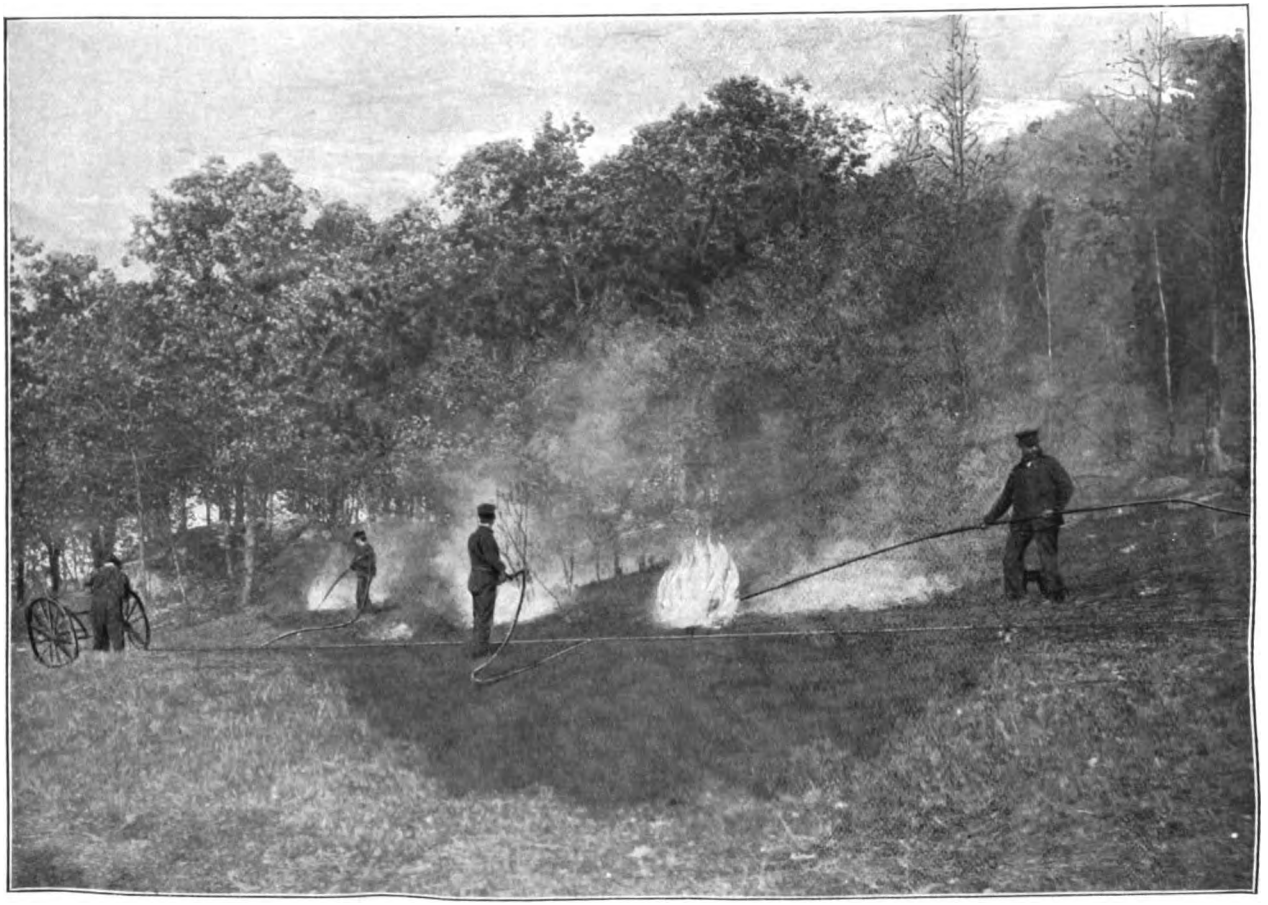

PLATE XXI.

Burning over infested brushland with cyclone burners. From Rep. of Mass. State Board of Agriculture.

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covered and reported before they get a foothold. They should also be fully informed of how the funds are being expended.

A very small sum may possibly be devoted to the study of native parasitic enemies, to see if we have any which are more effective than those found in Massachusetts, and to introduce and test such as may be imported from Europe by Massachusetts and the Federal Government.

Several healthy colonies of the brown-tail moth have been discovered in the State, and while, for reasons to be given later, the fight against this insect should be left more largely to individual effort, such bulletins and circulars as will educate the people to help themselves should be written and widely distributed. There should also be a little money available to take care of any especially serious outbreaks which may occur at any time and which individuals can not stand the expense of suppressing. This may not require a great deal of money, but it is not safe to ignore the possibility of a need thereof entirely.

Relative Cost of a Campaign Against These Insect Pests.

Let us consider the proposition further from a financial point of view. There are probably in the city of Providence and vicinity 170,000 trees which will have to be dealt with another year. Taking this estimate as a basis, the appropriation asked for amounts to less than fifteen cents per tree. The people of Providence and vicinity should not object to a small addition to their taxes for the expenditure of this sum to protect their trees from defoliation and possible destruction, and the people outside the infested district should and will probably be glad to add their share to avert the spread of the pest over the whole State, and the much larger expenditures which must then be made from year to year merely to keep it in check. The expenditure required for extermination now is small compared to what we may expect will be required if the insect is not suppressed or exterminated.

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Finally, the sum of money asked for is designed to last through one season of burlap and spraying work and two winters of creosoting of egg clusters and cleaning and up to the beginning of the burlap work in 1908. It was found in Massachusetts in the previous campaigns that the legislature acted too slowly on the annual appropriations, and consequently the work was delayed from year to year while awaiting funds for the work. As this delay occurred during the winter season when the most effective work can be done, much valuable time was lost, to say nothing of the loss incident to laying off the force of men and disorganizing the arrangements for the work.

An Efficient Law Required.

In connection with the appropriation a simple and efficient law should be enacted to cover essential points in relation to the work. This should declare the gypsy moth and the brown-tail moth public nuisances. It should provide for placing the work under the direction of one man, responsible to the Governor and the General Assembly. To him should be delegated power to deal with conditions and exigencies which may arise in such a way as to further the intent of the act.

The law should also provide for preventing further spread of the pest and for essential details of this provision, and for severe punishment of malicious persons who may seek to spread the insect.

Advice and Suggestions From Experts.

Whatever is done with our gypsy moth situation at the present time, it is bound to be somewhat expensive work for the State. We have also reached a point in the work at which some definite decision should be arrived at regarding what shall be the policy of the State, for at least the immediate future, in regard to the campaign against the pest. It is essential, therefore, that we should study carefully our conditions, and that we should get such expert advice and opinions as are available in regard to what should be done. With this

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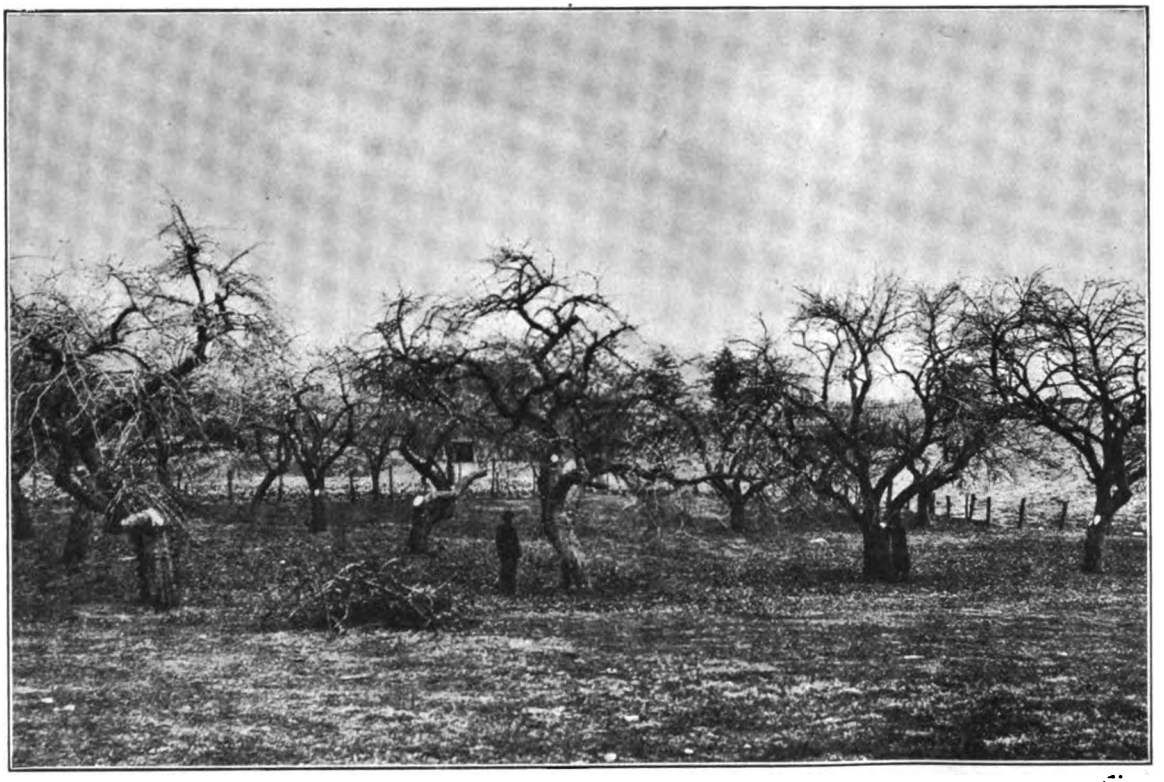

PLATE XXII.

Old apple orchard near Field and Cranston streets, Arlington, Rhode Island, badly infested with the gypsy moth. The photograph is intended to show the large amount of work and material which is necessary to patch up an old orchard in order to put it in shape for thorough work in eradicating the gypsy moth. All the white spots on the trees are large zinc patches. Only a portion of the orchard is shown, and by no means all of the zinc patches.

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purpose in view, the writer has corresponded with Supt. Kirkland, the State entomologists in the different New England States and New York, and with Dr. L. O. Howard of the Department of Agriculture at Washington, regarding our situation, asking them to give us such statements as they thought pertinent in reply to questions asked.

In addition to inquiries concerning our own situation, questions were asked regarding the present condition in the States in which the moth is now found, and also as to what measures the different States would probably take in regard to the pest.

In writing to these parties the following questions were asked: It should be said in passing, however, that separate letters were dictated to each one addressed, and the questions were not always given in the same order and form, nor were all the questions sent to each one, consequently, the letters will not appear to answer the questions in the order here given, nor all of the questions.

"So far as you know of the condition in Rhode Island, do you think that the policy of the extermination will be cheaper in the end than one of suppression?"

"How much more expensive at the present time will a policy of extermination be over that of suppression, and how long should it take to exterminate the moth in Rhode Island?"

"If exterminated, have our people any assurance that the insect can be kept from invading the State again from the neighboring infested regions?"

"What chance is there for the development of parasitic enemies which will keep the moth in check more or less completely? If the parasites which we now have, and which may be imported, are promising results, can we hope for sufficient aid from them within a few years?"

"What is the total infested area in your State, and what are you intending to do in the way of securing legislative appropriations for combating the pest?"

"Is your State planning to do anything to assist in securing a national appropriation to help in the campaign against the gypsy moth?"

To those who know something of our conditions the writer made a brief statement of the present infested territory, and also requested that an estimate should be made of how much money would be necessary for our work next year.

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By permission of the writers, the replies are here given almost in full. In two or three, parts which were in answer to specific questions asked regarding other matters, not pertinent to the present discussion, have been left out. So far as the replies to the above given questions are concerned, however, the letters are copied verbatim:

LETTER FROM DR. L. O. HOWARD, CHIEF OF BUREAU OF ENTOMOLOGY, U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

January 14, 1907.

My Dear Professor Stene:

I have yours of the 12th instant, and reply to your questions as follows:

(1) If the gypsy moth is exterminated in your State, I think it practicable to keep it from regaining a foothold.

(2) I have strong hopes that the European parasites we are now importing will hold the gypsy moth in check. I am unable to predict the time when the effect of their work will be observed. It may be soon—that is to say within a year or two—or it may be several years.

Yours very truly,

(Signed) L. O. HOWARD,

Chief of Bureau.

From another letter in regard to questions as to policy for Rhode Island and the help that we may obtain from the National Government, Dr. Howard writes as follows:

"I have your letter of the 2nd instant, and, to answer your last question first, I am thoroughly convinced that the best plan for you to work upon in your State is to endeavor to exterminate the gypsy moth, and not merely to control it. So long as you are isolated, as you appear to be, this is the only policy to be considered, in my opinion.

"As to the amount the general government can expend in your State, I am unable to inform you. The Secretary of Agriculture, in his estimates, has asked for a repetition of this year's appropriation, namely, $82,500. An effort will be made to have this very considerably increased, but it is absolutely impossible to predict the action of Congress in this regard. So you see it is impossible for me at the present time to estimate the amount the department will be able to spend in your State. I earnestly hope that the State will make a good appropriation,

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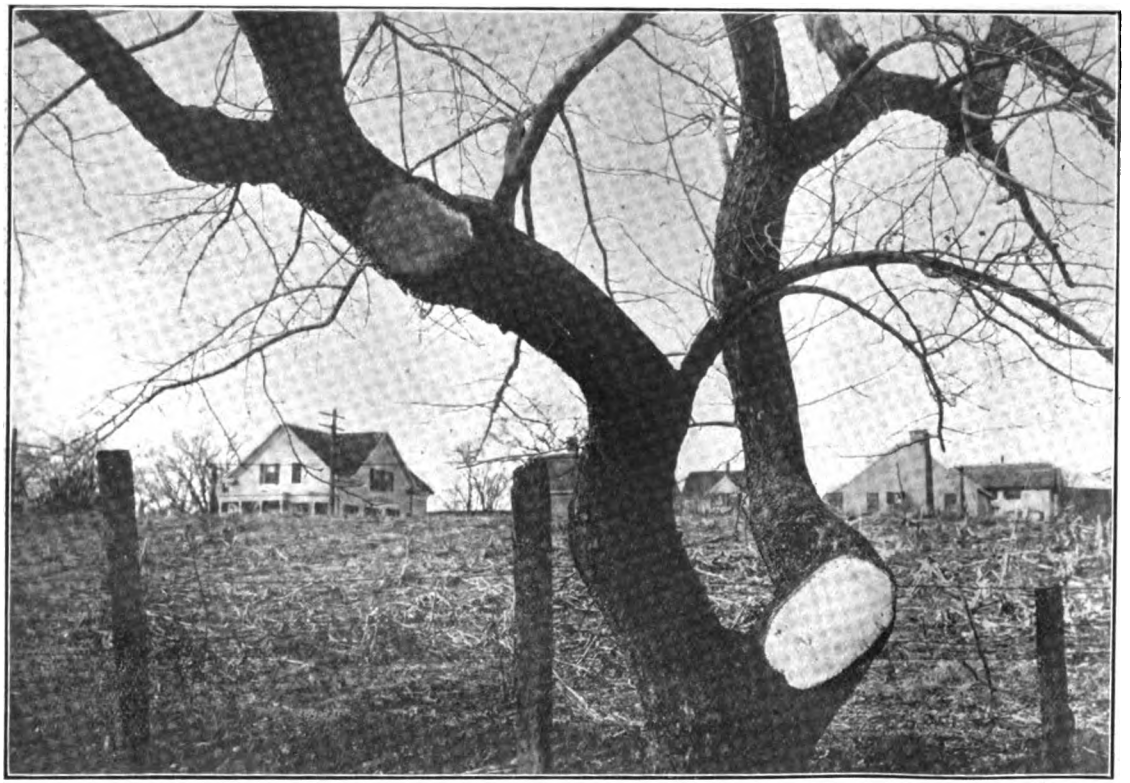

PLATE XXIII.

An apple tree in the orchard shown in Plate 22. It shows how errors in pruning have resulted in large holes in the trunk and branches of the tree. These have been closed up with zinc patches described for the previous picture. The trunk of the tree is about two feet in diameter.

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since extermination in Rhode Island seems to be possible, and I feel sure that the Secretary of Agriculture will be all the more willing to assist Rhode Island if it be shown that there is a strong effort for self-help there."

LETTER FROM DR. C. H. FERNALD, PROFESSOR OF ZOOLOGY, MASSACHUSETTS AGRICULTURAL COLLEGE.

AMHERST, MASS., January 12, 1907.

PROF. A. E. STENE.

DEAR SIR:—I am in receipt of your letter of the 7th asking for my opinion as to the best method of dealing with the gypsy moth in Rhode Island; whether it will be cheaper, everything considered, to enter immediately upon an exterminative policy than to adopt one of suppressiononly? After an experience of fifteen years with the gypsy moth in Massachusetts, and one summer in Europe, I am decidedly of the opinion that your State would better work for complete extermination rather than for suppression, for the following reasons:

1. Suppression, of course, means annual appropriations during all time, the amount of which I cannot estimate so closely for your State as for Massachusetts, where I am more familiar with the conditions. During the nineties, when we were fighting the gypsy moth in an infested territory about equal to that at present in your State, we found it very difficult to obtain sufficiently large appropriations from our legislature to carry on the work successfully. Some years we were able to secure an appropriation of $200,000, and with that amount we made good progress toward extermination. When we received $150,000 or $125,000 we still made some progress, but when we received only $75,000 it was apparent that we barely held the moth in check. I therefore think that the estimate of Mr. Kirkland of $25,000 for your next appropriation was a very conservative one.

You now have, as you write, an infested area of about twenty square miles, which is about one-fiftieth of your entire territory. If you simply work for suppression now, the insect will eventually spread over the entire State, and then the annual appropriations for suppression would amount to far more than would be necessary for extermination at the present time. You would be making the very same mistake that we made in this State.

2. The work for extermination would, for the first few years, cost more but as it went on the territory would become restricted and would soon be so limited in area that the cost would be much less than for suppressive measures on your present territory and would be constantly growing less.

3. The question of parasites is entirely problematical. No one can tell, at the present time, whether the parasites will become acclimated in this country,

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but if they do, and accomplish their work as well as in Europe, even then the occasional destruction which the gypsy moth will cause in a comparatively short time will amount to far more than the cost of extermination at the present time. For an account of the work of this insect in Europe, where the parasites are holding them in check under the most natural conditions see the large report on the gypsy moth, 1897, pages 273 to 284, where you will find an account of the devastations of this moth in 1879-80 in Russia, where the climate conditions are more like those of New England than are most of the other parts of Europe. In the above named years the caterpillars of the gypsy moth ravaged the entire territory from Kiev to Kazan, a territory about equal to all of our Atlantic States. These periodical outbreaks will occur through all time, in spite of the parasites, under the most favorable conditons.

4. The general desire of the taxpayers in this Commonwealth is to prevent the spread of this moth into the uninfested parts of the State, and to reduce them in the infested territory to such an extent as to prevent material damage The real purpose of the work by the U. S. Government is to prevent the moth from going into other States, so that as long as the United States and Massachusetts keep up the work against the insect there, is little if any, danger of the reinfestation of your State.

Yours truly,

(Signed) C. H. FERNALD.

LETTER FROM MR. A. H. KIRKLAND, SUPERINTENDENT OF GYPSY MOTH WORK IN MASSACHUSETTS.

BOSTON, MASS., December 31, 1906.

Dear Professor Stene:

I take my first chance to reply to yours of the 26th, and am very glad if I can be of any help to you. Answering your questions *seriatim*, I would say:

(1) By all means I should advise your State to attempt to exterminate the gypsy moth from its borders. There are no serious infestations in southern Massachusetts from which you are liable to receive the moth, and with the work we are doing here, the danger of the insect spreading from Massachusetts into Rhode Island will grow less and less each year. Your problem is not a large one in area, and I should do all I could to absolutely exterminate the insect from the State. This can be done if you have sufficient funds and the work is properly handled.

(2) The outlook for securing natural parasites is as good as could be asked for. There is no question about getting plenty of the material. The only ques-

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PLATE XXIV.

The breaking off of branches or bad pruning is responsible for hollow trees. In order to prevent these hollows from becoming the hiding places of the gypsy moth it is necessary to close them up. This illustration shows how the tree has been repaired with zinc patches.

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tion is how well they will adapt themselves to this country, and how much help we shall get from them in the new environment.

(3) The amount necessary to exterminate the moth will probably be somewhat greater—say 25 per cent.—than the amount required to control it.

(4) It is only fair to say, after all, that we do not know absolutely that the parasite experiment will be a success. If it fails, and nothing is done in your State until the failure is demonstrated, you will indeed be in a bad way. If it succeeds, then you can probably drop or very materially reduce the size of appropriations required.

(5) With abundant funds you ought to exterminate the moth in Rhode Island in five years. With diminished appropriations, such as legislatures are apt to make, it may take from eight to ten years.

Truly yours,

(Signed) A. H. KIRKLAND,

Superintendent.

LETTER FROM D. M. ROGERS, SPECIAL FIELD AGENT FOR THE BUREAU OF ENTOMOLOGY IN CHARGE OF THE UNITED STATES GYPSY MOTH WORK IN NEW ENGLAND.

No. 6 BEACON STREET, BOSTON, MASS., January 4, 1907.

Dear Professor Stene:

Wish to acknowledge receipt of your letter of January 3, and will try to reply to your questions in a way to help you all I can.

As to the expenditure of government money in the different States, will say that Massachusetts has the most moths and is doing the most toward fighting them and naturally is getting the larger part of the Congressional appropriation. The work in Massachusetts has principally been confined to clearing up of roadsides through infested woodland. While the State moth laws are quite effective in clearing the moths from residential sections, the woodlands of low assessed valuation receive almost no attention, and in these spots the moth has been allowed to increase to enormous numbers, and in the caterpillar stage devour all the foliage and crawl about in search of more. Dropping from the trees being one of the great reasons for its spread, we believe that by clearing up these areas so as to keep the moth from scattering in this way, we shall in a great measure prevent their spread. We are cutting all the underbrush, trees which are dead or have unusually rough bark, pruning the dead wood from the remaining trees, leaving only good specimens upon which the moth can be fought with the greatest success. These strips are about one hundred feet wide on each side of several

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main avenues of travel, particularly those frequented by through traffic from the infested centers, such as Newburyport Turnpike, Lowell Turnpike, and other roads which have badly infested woodlands along them, and are frequented by automobiles or market gardeners going long distances.

At the time the Government took hold of the work in Rhode Island, the caterpillars were nearly through feeding and the moths were already depositing egg-clusters. The men found and destroyed a great many caterpillars and pupæ, but the work has been confined principally to creosoting of the egg masses, cutting brush, and cleaning up. We have expended in Rhode Island, since the Government took hold of the work, not quite $4,000, and shall probably continue to spend about $700 per month until the caterpillars begin to hatch or we have covered the territory. The city of Providence has been all gone over, and cleaning gangs are now working in Cranston and will next take up Johnston. We also have five men in a separate gang scouting the northeastern part of the State. They have found no gypsy moths in Woonsocket, North Smithfield, or Cumberland, so far as it has been looked over. We hope to continue this scouting work until all the localities which seem to be most likely to have had the moth introduced have been examined, which I should think would include from one-third to one-half of the State. Should the moth be found outside the district now known to be infested, we would undertake to destroy such colonies as rapidly as possible.

In New Hampshire, the Government began gypsy moth work about the first of August, and most of the work that has been done is the examination of the territory locally known as "the coast towns." The gypsy moth has been discovered in all of these towns, though not in very large numbers in any single locality. All that has been found has been destroyed, except in a few instances. These are localities where it will be necessary to do climbing, chopping open of hollows, cutting down of trees, burning brush and cleaning. This will be attended to before time for the eggs to hatch. We now have in New Hampshire seven men, and it is our purpose to keep them there until about May 1.

Scouting operations were begun in Maine about the middle of November, during which time we have found the gypsy moth established in five towns. The only work done in the Pine Tree State is this examination of territory and the destruction of the egg clusters wherever they have been found. There are now eight men at work in Maine.

In Connecticut the State authorities have done all the gypsy moth work which has been done so far. All the known infestation is confined to an area of about a square mile in the town of Stonington. There has been a small crew of men at work, under the direction of Dr. W. E. Britton, a large part of the sime since the spring of 1906. That State alone is showing a disposition to handle its own moth

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PLATE XXV.

This photograph illustrates the injuries which are so commonly found on the street trees of our large cities. They are caused by the gnawing of horses, or by driving carriages against the tree and rubbing off the bark. Such trees when a little more fully decayed form holes in which the gypsy moth finds convenient shelter. A creosoted gypsy moth egg cluster is shown above the injury.

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problem, but later we hope to put a crew into the country surrounding Stonington for the purpose of scouting a wide margin around the infested territory.

In all of the New England States which are infested, we are doing what seems to be the most necessary work, without favoritism. Aside from Massachusetts, Rhode Island has received the most assistance, because it has more serious infestation than the other States.

Your question as to what assurance the people have that the moth will be kept out after they have accomplished extermination is a poser, and I do not believe I can answer it with any satisfaction to you or myself. In reply to your question as to future policy, will say that in all probability, if Congress continues to make appropriations, this department will do all that it can in aiding each of the States along present lines, unless there should be discovered more practical methods.

As to matter of policy for your State, would say that it seems to me desirable for your legislature to make sufficient appropriation to attempt extermination. With the very best work they could possibly do, and with liberal appropriations, it will be several years before actual extermination can be expected. Even if this should not be accomplished, I believe it best to strive for it. Suppression that would prevent any serious injury being done to the foilage or crops of the infested locallity could be accomplished without enormous expenditure, but such appropriations would be necessary for a great many years and the leaving of a few moths over this area would increase the chances for spread, so that in time a suppressive policy over a large area might prove to be in the end more expensive than the exterminative policy over the area now known to be infested.

While the sum of $25,000 may look to your people as a large amount to be expended in fighting the gypsy moth, will say that it is not a cent more than you will find use for. You know what the last summer's work cost, and that a great deal larger area will need similar treatment the coming season. The city of Providence should have almost every tree within its borders burlapped, and while we do not know what part of Cranston and Johnston will need attention and whether the moth will be discovered outside of this district, you will see the necessity of quite an increase in the burlapped area, and considerable territory which will need spraying and next fall an extensive and careful cleaning.

I cannot say very much to you in regard to the national appropriation. I suppose the bill was introduced with the Budget, but when it is coming up for any special hearing I am unable to say.

Very truly yours,

(Signed) D. M. ROGERS.

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LETTER FROM DR. W. E. BRITTON, OF THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION, AND STATE ENTOMOLOGIST.

NEW HAVEN, CONN., December 31, 1906.

MR. A. E. STENE.

DEAR SIR:—On my return from attending the meeting at New York, I find your letter awaiting me. Approximately one square mile is all the territory that we know to be infested by the gypsy moth at Stonington, and we have not found it elsewhere in the State. This area is situated just north of the village, and as you will see from the accompanying sketch, it is interrupted on the east and west by water, so that unless carried, it can spread only to the north, and if has not gone beyond the point where we found it, I think we will be able not only to hold it in check, but to exterminate it completely. We have done much scouting around the northern part of this region, and have not found it beyond the area indicated by the red lines on the map. It is difficult to find any egg-masses, though we are having the ground gone over very thoroughly. I believe it will be possible to exterminate it.

The United States appropriation which is being expended by the Bureau of Entomology has not yet been extended to Connecticut, although arrangements have been made, and I expect that Mr. Rogers will send some scouts into our State within a few days. I doubt if the gypsy moth can ever be exterminated in Massachusetts.

We shall ask for a special appropriation from the legislature of probably not less than ten thousand dollars, for two years, possibly more. Our own experience so far points to the wisdom of having some money set aside or made available for just such work as this. Had Connecticut been in the same condition as Rhode Island, or in fact any of the other New England States except Massachusetts, this gypsy moth colony must necessarily have spread and covered a far greater territory before any efficient work could have been done, or before any funds could have been raised for carrying it on; but Connecticut had five years ago made provision for State work against insects, and the Board of Agriculture had a surplus on hand, which made our immediate work possible.

There is no special effort being made to secure further appropriations from the National Government; yet I shall, of course, endorse the work which they are doing, and shall favor the continuation of their appropriation, and probably ask for its increase. All New England States, or at least those infested, should stand together along this line.

With best wishes, I remain,

Very truly yours,

(Signed) W. E. BRITTON,

State Entomologist.

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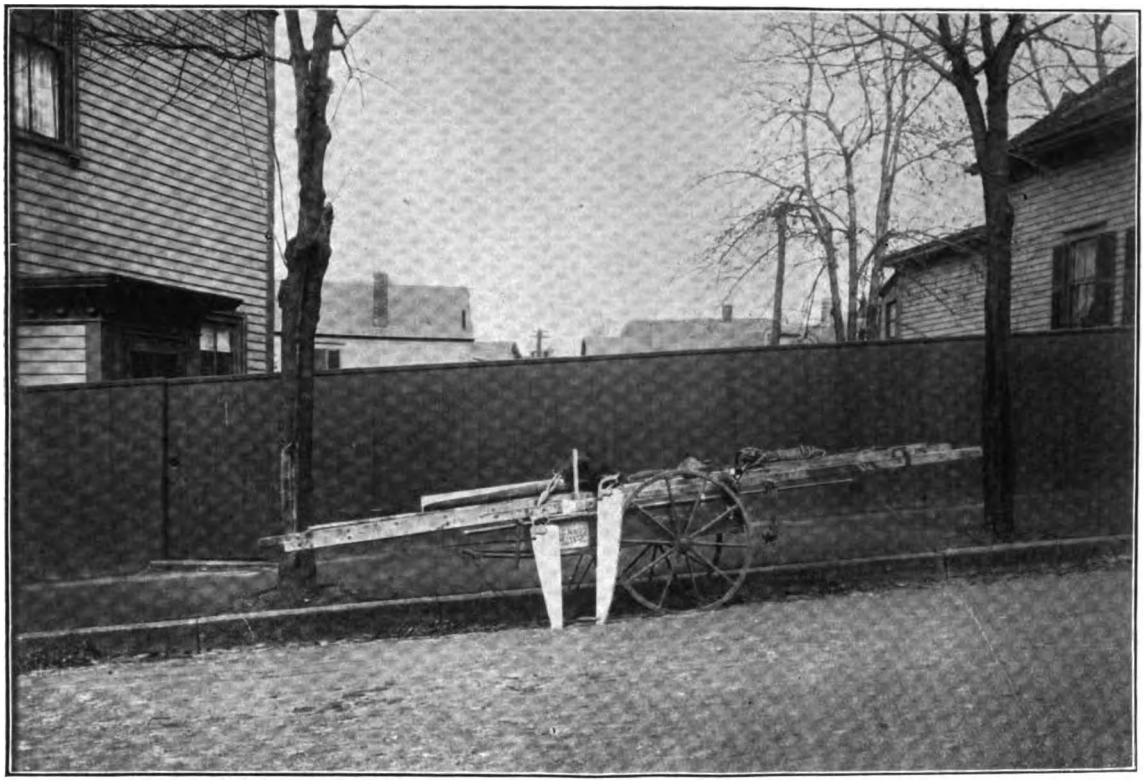

PLATE XXVI.

One of the carts used by the men in carrying their tools and supplies from place to place. The picture shows ladder, extension poles for brushes, saws, zinc, axes, climbing irons, etc., which are essential for the various kinds of

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LETTER FROM DR. E. PORTER FELT, STATE ENTOMOLOGIST OF NEW YORK.

ALBANY, N. Y., January 5, 1907.

PROF. A. E. STENE.

DEAR PROFESSOR STENE:—Replying to your communication of December 29, it is certainly most advisable to have liberal appropriations for controlling both the gypsy and brown-tail moths. Personally, from my knowledge of the gypsy moth and lack of very definite information concerning the Rhode Island infestation, I would not deem it advisable to advocate the adoption of exterminative measures for the eradication of the gypsy moth. It might be that an examination of the territory would lead to a revision of this opinion. The experience in Massachusetts has shown it to be almost impossible to secure the large sums necessary for successful exterminative work during a series of years, and unless there is no doubt as to obtaining sufficient money to accomplish the purpose, it is far wiser, in my judgment, to be content with repressive measures.

The gypsy moth spreads very slowly, and it is undoubtedly true that, were the insect to be exterminated in the city of Providence and its vicinity, there would be no recurrence of the pest for a number of years, provided the present repressive measures are rigidly enforced in Massachusetts. We all hope that the latter will be continued for a long term of years, and the further spread of the moth stopped until natural enemies of one kind or another are able to adequately cope with the pest. Unfortunately, if history repeats itself, and such is very likely to be the case, we have no guarantee that the present highly efficient measures will be continued for more than a relatively few years. The result would inevitably be a greater spread of the moth, and it is measurably certain that the automobile in the future will be even more effective than it has been in the past in carrying this pest, unless more strict measures are employed to prevent its dissemination. These considerations lead me to question very seriously the advisability of attempting to exterminate the insect from any extended infested area within fifty or one hundred miles of the large section now inhabited by this pest.

There is a serious danger of the gypsy moth being brought into New York State, and this has made it advisable to disseminate widely information concerning the insect for the purpose of enlisting the coöperation of the public in detecting this pest upon its earliest appearance. Last summer this office issued an illustrative placard giving the salient features of both the gypsy and brown-tail moth, and this was followed by a summarized bulletin treating of the two species. This has resulted in a great many of our citizens becoming deeply interested in insects, and many of the leaf-feeders were sent in for identification. Such general interest should make it nearly impossible for the gypsy moth or any similar pest to become well established over a large area before it was detected. We have

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also inspected various places in the State where there seemed to be the most chance of the insect being introduced, and some work of this character has also been done by the agents of the State Department of Agriculture.

It is very probable that an emergency appropriation from the legislature will be requested this year, so as to have some funds on hand in case an infestation is discovered. The amount cannot be stated, but I would certainly favor the making of a liberal appropriation because of the obvious advantages in having plenty of means at hand in such an emergency.

All parties in New York State interested in this matter will gladly lend assistance toward securing appropriations from the national government, for the purpose of aiding the States now infected by these insects, since it is well recognized that repressive measures mean the protection of all to a considerable extent

Trusting that you will find the above of service, and assuring you of my interest in the matter, I am,

Yours very truly,

(Signed) E. P. FELT,

State Entomologist.

LETTER FROM PROF. E. D. SANDERSON, ENTOMOLOGIST OF THE NEW HAMPSHIRE AGRICULTURAL COLLEGE AND EXPERIMENT STATION.

DURHAM, N. H., January 7, 1907.

MR. A. E. STENE.

MY DEAR MR. STENE:—Yours of December 27 and January 3 at hand. I will send you in a few days a copy of a bulletin now in press giving the present conditions in New Hampshire. A bill will go into the legislature in a day or two of which I shall also be glad to send you copies as soon as I can secure them from the printer. I believe it will be possible to exterminate the gypsy moth in New Hampshire, I think it will take at least three or four years. I believe that by constant inspection we can keep our State clear of it from Massachusetts. I most certainly think that it would be cheaper to try to exterminate and keep out the pest than to depend on natural enemies and special legislative appropriations. If the gypsy moth ever gets a foothold in New Hampshire, there is a very slim chance of our being able to control it, as far as the present experience indicates. I believe that sometime in the future the parasitic and predaceous enemies will bring the gypsy moth to a condition similar to that in Europe. Whether this will be five, ten, or a hundred years, nobody knows. There is no question at the present time we must do everything possible to exterminate it.

We are now taking up the matter of additional appropriations from Congress with our representatives and senators, and we trust that the appropriation will

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be increased to $250,000. The two bills to be introduced in the New Hampshire legislature provide essentially for the office of State Entomologist, and for an appropriation of around $40,000 for the moth work. The entire work and power to make regulations is placed in the hands of the State Entomologist.

Very truly yours,

(Signed) E. D. SANDERSON.

LETTER FROM E. F. HITCHINGS, STATE ENTOMOLOGIST OF MAINE.

AUGUSTA, ME., January 1, 1907.

PROF. A. E. STENE.

MY DEAR SIR:—Your letter received this morning, and will hasten to reply. As to the infestation of the gypsy moth in this State, I can only give a partial report, as the U. S. Commissioners are still at work here.

They found quite an infestation in the towns of Kittery, Elliot, and York, and are now at work in the town of Wells. They will continue to scout over the whole section from Kittery to Portland. A stray egg-cluster was found at the Soldiers' Home at Togus, near Augusta.

I hardly think it possible to *exterminate* the moth in Maine, unless the national government joins hands with us. I am confident that the pest can be *exterminated* in New England *if* we *all* pull together.

It will mean a *strong pull* and that *right now; next year won't do*, that is, there must be concerted action along the best possible lines of work and investigation, and that right away. Our legislature will meet to-morrow. We have had one committee meeting and will hold another soon. I cannot say just what will be done, but it will be something, and I hope something substantial.

As to the State work outside of Massachusetts, I think that each State should do its utmost to get rid of the pest within its borders, and have a contingent fund to draw from in case of any emergency.

I think that our only hope is to secure, if possible, as large an appropriation from our national government as may be, so that they can join with us in stamping out this insect pest.

As to natural enemies, I have no hopes whatever from any assistance from our native parasites; it may be possible that the foreign ones may become acclimated so as to hold them in check, so that only occasional devastations will occur; but they will *never* exterminate them, in my judgment.

Very truly yours,

(Signed) E. F. HITCHINGS.

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THE BROWN-TAIL MOTH.

(*Euproctis chrysorrhœa*, L.)

As will be noted from the resolutions which were passed last spring by the General Assembly, the money appropriated was to be expended for the suppression of both the gypsy and the brown-tail moths. While these two insects have been companion pests and have thus fallen under the ban of law to an equal degree, they are very different in their life history and must be dealt with in a different way. The principal reason for this is that the gypsy moth spreads very slowly, and largely by human agencies, and therefore can be controlled or suppressed, and even exterminated in areas where sufficient work is done to that end. It is also somewhat limited in its present extent as compared to the more recently imported brown-tail moth. Both sexes of the brown-tail moth are strong flyers and spread rapidly of their own accord, and are now distributed over a large territory. Hope for extermination in this country is entirely gone. If exterminated in one section of the country, a favorable wind at the time of the flying of the moths will reinfest this territory, within one season, almost as thoroughly as if no work had been done.

The habits of the brown-tail are also different, and such that the fight against this insect is quite simple and may be left more generally to individual efforts. The egg clusters of the gypsy moth in which the insect passes the winter are hidden away in various nooks and corners as well as on trees, and it takes experienced men and close scrutiny to discover all the clusters which may be found in any given locality. The brown-tail moth, on the other hand, passes the winter in the caterpillar stage in closely woven nests which are nearly always found at the tips of the branches of the trees which it infests. These nests are, therefore, easily seen even by unskilled workmen, and can be readily cut off and burned to destroy the insect.

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FIG. 1

FIG. 2.

FIG. 3.

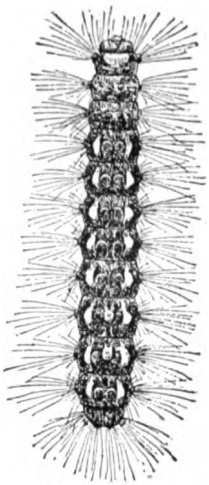

FIG. 4.

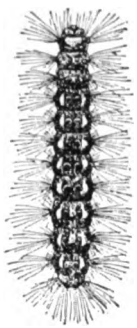

FIG. 5.

PLATE XXVII.

Life History of the Brown-tail Moth.

Explanation of Plate

FIGURES NOS. 1, 2, 4, AND 5 DRAWN FROM NATURE BY J. H. EMERTON

No. 1.—Female brown-tail moth.
No. 2.—Winter web of brown-tail moth caterpillars.
No. 3.—Pruning shears suitable for removal of winter webs.
No. 4.—Brown-tail moth caterpillars, enlarged.
No. 5.—Brown-tail moth caterpillars, natural size.

From special report on the Brown-Tail Moth, Mass. State Board of Agr., 1903.

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Fortunately also the brown-tail moth, although causing a great deal more personal discomfort when present in large numbers, is not so serious a pest as the gypsy moth. As has been learned already, the gypsy moth feeds on nearly all kinds of vegatation, including both deciduous and evergreen trees, and is especially destructive to the latter. The brown-tail is limited in its food-plants, being found usually on fruit trees and on but a few species of forest trees, and does no damage to field and garden crops. It is an insect also which, on account of its life history, is much more subject to the vicissitudes of climate and to destruction by fungous and parasitic insect enemies. In this connection it may be noted that, according to the reports from Massachusetts, a fungous disease, Empusa aulicæ (*Empusa grylli*), has been very destructive to the brown-tail caterpillars in many sections of the infested territory; so much so that in a great many places where the brown-tail has been a more disagreeable pest than the gypsy moth, there has been hardly a complaint this year from its presence.

The sum total, then, of the discussion of these two pests is about as follows: It is possible to exterminate the gypsy moth and money expended to that end is well spent, and it can be kept out if once exterminated. The brown-tail we have no way of controlling by any mechanical means, and appropriations for fighting it must be devoted largely to such measures as are necessary for suppression. The work of suppression can, to a certain extent, be done as well by individuals as by the State, and as the gypsy moth demands immediate attention, the brown-tail can and should wait for consideration until sometime in the future when it will be absolutely necessary to deal with it.

How much of our territory is infested can not be accurately known. During the summer and fall, however, the insect has been reported from Woonsocket, East Providence, and Pawtucket. It has also been rumored that a few specimens have been found in Providence, but so far the infestation is not so very serious except perhaps in Pawtucket. One of the principal efforts of the State should be that of publishing such reports and accounts of the insect as shall enable

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the people of the State to become thoroughly acquainted with it, so that they can make efforts to keep it in check on their property, should it occur. In accordance with this idea, a short descriptive account of the insect will here be given.

History and Distribution of the Brown-Tail Moth.

This insect was imported into this country sometime after 1890, and was first noticed around Somerville, Massachusetts. It is not definitely known how it was brought over, but circumstances indicate that it was carried across the ocean on nursery stock. Like the gypsy moth, it attracted but little attention at first and was thought by the people of the district to be some native insect which had always been with them. In 1897, however, it had become such a destructive pest that it was brought to the attention of the gypsy moth workers and by them identified as the brown-tail moth so common in Europe. There was at that time no appropriation made for fighting anything but the gypsy moth, and consequently but little could be done except to ascertain the extent of the infested region. Precious time was therefore lost, and with it the hope of ever being able to exterminate the insect in this country. Later on a little money was appropriated for use against the pest, but it was merely sufficient to keep it partially in check in some of the thickly settled districts of the infested region. Since that time it has spread rapidly, until it has now been reported from the White Mountains in the north, eastward all along the coast of Maine into New Brunswick, south of Boston along Cape Cod Bay, into the eastern part of Rhode Island, and westward in Massachusetts to the Connecticut Valley. It is only a question of time when it will probably spread throughout the whole temperate region of North America.

It is a pest of no mean importance, owing especially to the irritative properties of some of the hairs, which will be mentioned later in the description of the insect. Infested districts have been made more or less uninhabitable to a great many people, and in some cases it has resulted in the reduction of real estate values and of property rentals

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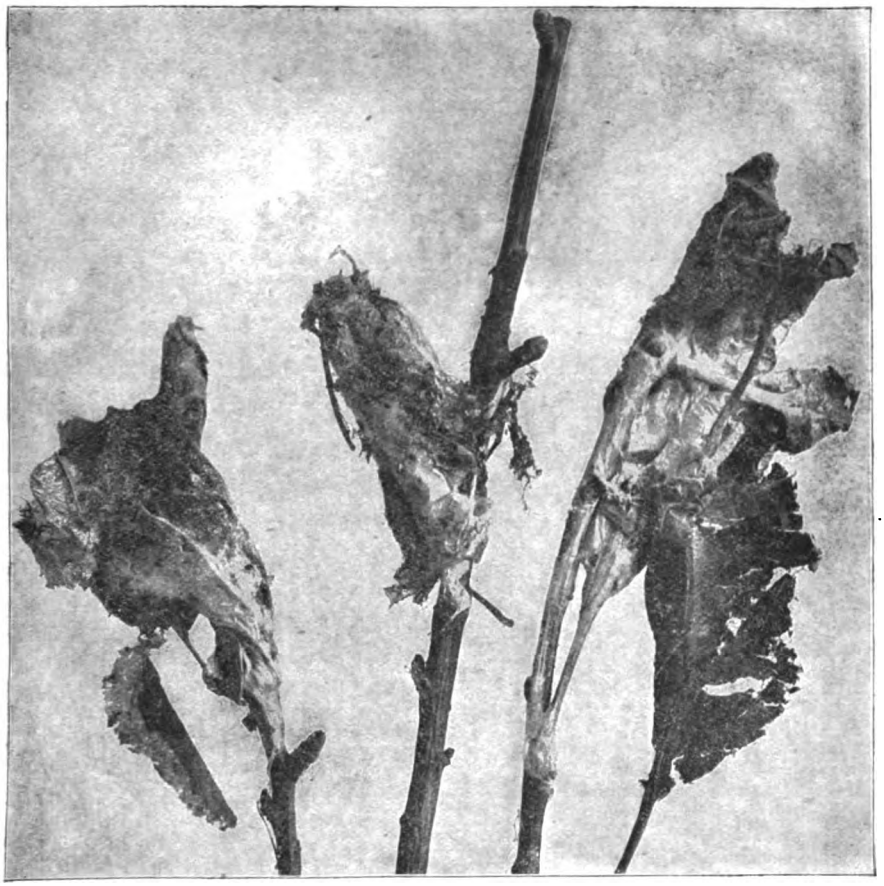

PLATE XXVIII.

Winter Nests of the Brown-tail Moth.
After Britton, Rep. of Entomol, 1892, Conn. Exp. Sta.

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from twenty per cent. to fifty per cent., aside from the destruction which it causes to the trees on which it feeds. Where both the brown-tail and the gypsy moths have been prevalent, trees have had slight chances for existence. The gypsy moth caterpillar takes up the work where the over-wintering brown-tails have left off and finishes the defoliation of the trees. By the time the second crop of foliage has been sent out by the trees, in a vain attempt to rehabilitate themselves, another brood of the brown-tails has been hatched ready to take hold, and the "lungs" of the trees are destroyed a second time. Such thorough stripping will result in the death of even a deciduous tree in one or, at least, two years.

The range of the brown-tail moth in the Eastern Hemisphere is probably nearly as great as that of the gypsy moth. In Europe it is known as the common caterpillar, and serious outbreaks of it are frequently noted. Its parasitic enemies are, however, firmly established and the outbreaks are similar to those of our forest tent-caterpillar and Army worm and are of comparatively short duration.

Life History.

The eggs are laid, two or three hundred in a cluster, in July, usually on the under side of leaves at the extremities of the branches. The eggs hatch in three or four weeks and the caterpillars at once begin to feed on the upper surface of the leaves. When winter comes on, the caterpillars, usually from two to three hundred in number, retreat to these nests, close up the openings and hibernate during the winter.

In the spring they appear about the time that the buds open and immediately begin to feed on the buds, unfolding leaves, and flowers of the trees infested. They become full-grown about the middle of June and begin spinning cocoons, usually in the leaves of the trees. Sometimes two or more caterpillars may unite in forming such a cocoon. The moth appears in two or three weeks, and both sexes fly actively by night. The flight usually begins at from 7 to 8 o'clock in the evening and reaches its height at from 10 to 11 o'clock. It is attracted to light and is found in large numbers around electric light

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poles, and frequently flies into the open windows of trains and electric cars to be carried long distances from its starting point. As food-plants, it prefers the pear, the apple, and other fruit trees, and the oak, maple, and birch; but these are by no means all the trees that it attacks.

Description of the Insect.

The egg clusters of the brown-tail moth are very much smaller and more elongated than those of the gypsy moth. The eggs are closely covered with golden-brown hairs from the tip of the abdomen of the female. The caterpillar is hairy, and after the first molt acquires characteristic yellowish or coral-red eversible tubercles, one on each of the tenth and eleventh segments, by which it can be readily distinguished. When full-grown the caterpillar is from one to one and one-third inches in length and of a dark-brown ground color with scattered yellowish markings. The body is covered with yellowish-brown hairs growing largely from the tubercles. Two rows of tufts with partially white hair give the caterpillar the appearance of having a broken white line along each side of the back. The coral-red eversible tubercles on the tenth and eleventh segments, already mentioned, are also present. The head is mottled black or dark-brown, and the legs are a reddish-yellow with black claws. Some of the very fine hairs which appear, especially toward the latter part of the caterpillar's life, are minutely barbed in such a way that when they fall on the skin they penetrate the tissues and cause a very annoying irritation, such that persons are sometimes made quite ill from the effects of it, and many have to vacate their homes in the infested regions during the height of the caterpillar season. The caterpillars become about one-fourth grown in the fall and finish their growth in the spring. When full-grown they attain a length of from three-fourths of an inch to one and one-fourth inches.

The pupæ are dark-brown in color and considerably smaller than the corresponding stage of the gypsy moth. The moths emerge in two or three weeks, or about the middle of July. Both sexes are

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white except at the tip of the abdomen, which carries a pronounced tuft of golden-brown hairs. The male has a wing expanse of about one and one-fourth inches, and sometimes the wings are dotted with black spots. The female is pure white, except as noted above, and somewhat larger than the male both in wing expanse and size of body. The characteristic brown tuft of hairs is also larger and more pronounced than in the male.

The brown-tail moth has a great many parasitic enemies. Many of the native parasites which have been mentioned in connection with the gypsy moth also attack the brown-tail. On account of the crowding of the caterpillars in the nests for a large part of the year, fungous diseases have an abundant opportunity to become destructive. Birds also are known to take an important part in checking the numbers of the insect, and it is related that even the notoriously useless English sparrow has been efficient in reducing its numbers.

Remedies.

On account of the nests being placed in conspicuous positions the remedy, par excellence, is cutting these off and burning them. That such work results in the destruction of a great many caterpillars, as well as the fact that the insect often becomes very numerous, will be evident from the following note taken from the first annual report by Supt. Kirkland:

> "As affording an idea of the abundance of the brown-tail moth, even in limited areas, where conditions favor the increase of the insect, the figures given by William Allen, Assistant Superintendent, Mount Auburn Cemetery, Cambridge, are of interest. During the winter of 1904–05, Mr. Allen removed from the trees in the cemetery 700 bushels of brown-tail moth webs, averaging 330 webs to the bushel, or a total of 231,000 webs. Estimating these at the average figure of 250 caterpillars per web, we have 57,750,000 caterpillars destroyed by the operation."

The only other practical remedy is that of spraying, and this is also very efficient for trees in cultivated grounds. The brown-tail

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moth caterpillar is far less resistant to poison and can be killed by a spray of one-half or even one-third the strength of that which must be used for the gypsy moth.

Banding is also useful in the same way as for the gypsy moth, namely, to prevent the infestation of clean trees by caterpillars from neighboring neglected trees.

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FIFTH ANNUAL REPORT

OF THE

STATE BOARD OF PUBLIC ROADS

OF THE

STATE OF RHODE ISLAND,

JANUARY, 1907.

PROVIDENCE, R. I.
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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State of Rhode Island.

MEMBERS OF STATE BOARD OF PUBLIC ROADS.

	Term Expires.
JOHN H. EDWARDS, Exeter, *Chairman*	1912
FREDRICK E. PERKINS, Providence, *Secretary*	1910
ROBERT B. TREAT, Centreville	1911
WILLAM C. PECKHAM, Newport	1909
JOHN F. RICHMOND, Drownville	1908

ROBERT F. RODMAN, Lafayette, *Engineer.*

PETER J. LANNON, Providence, *Clerk.*

NOTICE.—Regular meetings of the board are held on Wednesday of each week at 11:00 A. M.

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State of Rhode Island and Providence Plantations.

To the Honorable the General Assembly of the State of Rhode Island, at its January Session, A. D. 1907:

We, the undersigned, the State Board of Public Roads, under the provisions of section 3, chapter 982, of the Public Laws, entitled "An act to provide for the construction, improvement, and maintenance of State roads," herewith submit our fifth annual report.

JOHN H. EDWARDS,
ROBERT B. TREAT,
FREDERICK E. PERKINS,
WILLIAM C. PECKHAM,
JOHN F. RICHMOND,

State Board of Public Roads.

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REPORT.

At the session of the General Assembly held in 1892 the first move was made looking to the improvement of the public highways of the State. At that time a resolution was passed and a committee appointed "to examine into the condition of the roads and public highways of the State."

The work of the years, both under the present and past system, has proved an investment to the people of the State exceeding the most sanguine expectation. Any one familiar with conditions then and now will admit that the improvement is a fact beyond question. All interested in the subject of "good roads" must recognize that this commonwealth is among others in the forefront of a movement which has stirred the entire country for its civic, commercial, and social wealth and betterment.

Now that the work has outgrown the experimental stage it may be well to look back and see what was done in the early years; note the steps by which we have advanced to the present system of progressive road building.

As has been stated, a committee was appointed in 1892 and directed by the General Assembly to "examine into the condition of the roads and highways of the State, with a view to improvement in their construction and maintenance, and to revise and consolidate the laws relating to the same."

In its report to the General Assembly in 1895 this committee outlined the work which it had done and suggested certain amendments to the then existing laws of the State governing the care, use, and maintenance of the highways. They had gone over the whole situation most carefully, and credit must be given them for the able and

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comprehensive manner in which their work, necessarily limited, was done. They laid the foundations aright and made succeeding steps the easier. It must be remembered that this committee had no power to build; they were to inspect, suggest, and report. That report contained much careful and well-gathered information on the whole subject of roads, road building, materials, machinery, etc. It pointed out the four causes of the poor condition of the highways of the State; causes which will always be permanent factors in the system of road building, viz.: insufficient appropriation on the part of the towns for construction and maintenance; unwise expenditure of such money as the towns do appropriate; the improper use of the highways; the lack of proper repair. It also contained recommendations which at the time seemed for the best—the passage of "the wide tire" act; the appointment of a consulting engineer as a State Commissioner; the abolition of highway districts as they were then known, and the substitution of from one to four districts in each town.

They made no suggestions as to the building of State roads, save that they recommended to the General Assembly an act which provided for the construction, if a town so desired, of a half-mile of a "good, modern, well-constructed, macadamized highway," three-quarters of the cost of which was to be paid for by the State.

The report is interesting in that it serves to show those who are at all interested in the matter how far we have progressed in our ideas and methods in this branch of the State's business. We have gone beyond the prophecies and hopes of the people who then were looking at this problem of road building from a commercial standpoint. The agitation then begun has never lagged, and from it has grown a body of healthy public opinion which increases with every year and which is at all times demanding the best and wisest consideration at the hands of the legislature.

The recommendations of this committee were for the greater part adopted. In the two years following many towns availed themselves, through their councils, of the sample half-mile of macadam. This

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work was done under the supervision of a commissioner who had been appointed by the Assembly. The first of May, 1897, nine half-miles had been completed and eighteen towns had made application. There remained nine towns more to be assisted. The work was still an experiment, but nothing could have been done to better show people on all sides, the farmer, the mechanic, the mill owner, the pleasure seeker—everybody who was interested—that good roads were worth while. Here was the problem demonstrated in a manner that was plainly visible. There is no doubt that these sample half-mile roads started up the taxpayers, in every town where their worth has thus been seen, to demand and to appropriate the money for more roads of the same sort. It is quite true that there were other elements entering into the situation, but to see was to believe.

The Commissioner for the year 1896 reports: "The prices for the various parts of the work have been as low as are obtained elsewhere for the same class of work."

At the January session of the General Assembly the statutes were further amended to facilitate the work and to encourage the various towns in undertaking the somewhat more expensive task of laying down macadam in place of the older fashion of gravel and dirt. An act was passed to regulate the width of tires; another, amending that concerning guideboards.

The money appropriated by the State and expended in the nine towns for the purpose of building the sample half-mile of road was in total to May 1, 1897, $65,483.34. It was a first class experiment, or, better, an investment. Although the work was discontinued for some years, yet the seed was sown. The question of good roads was not to be indefinitely postponed nor permanently set aside.

In the meanwhile, as has been intimated, other elements were at work to help out the situation, to increase the volume of public sentiment. The steady rise of business bringing with it a greater amount of traffic, the knitting together of the several towns and cities of the State along industrial lines, the stretching out of electric

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car service, combined with the most marvellous growth of the automobile for pleasure—these things again forced the question of roads to the front. Many towns had proceeded regardless of the State. Miles of good substantial macadam were being laid, and had been, when in 1902 the question was again introduced into the General Assembly. A new board was created by your honorable body, to be known as the State Board of Public Roads. This Board rendered its first report in 1903. The work of that first year was largely experimental, although the board had definite and fixed ideas of what the probable cost would be per mile; also what should be the plan of work. It was not experimental in the sense that we were to go at the task haphazards. Infinite pains were taken to get at the problem from the best standpoint. Literature was subscribed for, and much was sent gratis; the work in other States was inspected; practical men of affairs were consulted, and the best engineering advice was taken; college professors gave their knowledge of the geological foundations of the land:—from every source where knowledge was to be obtained that would throw light on the subject, was that knowledge sought. At the end of this, the fifth year of our official existence, we consider that the work has passed from the experimental stage to that of a well-defined, practical, and settled one. In other words, it is to be said that the Good Roads Department of public affairs no longer rests upon any uncertainties. We have sought to keep abreast of all that was up-to-date in this line of work. At your hands legislation has been secured which has made success possible, not the least of which was the act bonding the State for the work of good roads. A comparison of the annual reports shows plainly the steps by which the work has been done—without haste, conservatively, with the idea of the largest amount of substantial and lasting accomplishment at the least economic cost steadily in view. We believe that we are receiving as much in return for our money as others who have been longer at the work. The lowest possible cost, particularly in road building, is not always economy. For the most part our hopes of five years ago are fulfilled and are

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steadily approaching the consummation of the plan then adopted. The network of State roads is growing within our borders, and where ten or eleven years ago there were little more than nine half-miles of "sample" roads in the as many towns, to-day there are 165 miles of improved highways. Most people will recognize the fact that a work so extensive as this, conforming to a general plan, has its exceedingly difficult problems. We have, however, met with great consideration from the towns and from individuals most deeply concerned, and if we receive the same courtesy hereafter we feel confident that all will be satisfied. Wherever the work has gone on there has been an improvement, not only in roads, but in all the conditions which good roads affect. No one owning horse, bicycle, or automobile, whether traveling for business or pleasure, would go back to the old roads, muddy, rutty, gullied, rock-obstructed, and ungraded. This fact is a sufficient indication of the work of your Board, the act and of the expenditure entailed. Rhode Island is a State destined for the most compact sort of living: the towns and the cities are coming closer and closer every year, conditions requiring the best of roadways. The people have come to realize the value of good roads, which without doubt have encouraged and increased the building of homes in the sections where they have been constructed.

It is in the connected highways and thoroughfares that the people's best welfare is served. In accordance with the original act, we have had due regard for the connection of such main highways in the State and their connections with those of other States.

There is one feature of this work which needs the most careful and earnest consideration, the care and maintenance of these State roads. What shall be done with them? Shall they be allowed to undergo the disintegration that goes on in all nature? It is poor economy to build a costly structure and then allow it to go to pieces for want of proper maintenance.

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Providence County.

A section of highway in the town of Burrillville, beginning at the northerly end of State macadam and extending northerly a distance of 6,900 feet, was awarded to the Lane Construction Corporation, of Meriden, Connecticut.

A section of highway in the town of East Providence, beginning at the Massachusetts line on Waterman avenue and extending westerly a distance of 7,500 feet, was awarded to Joseph McCormick, of East Providence.

A section of highway in the town of East Providence, beginning at the northerly end of State macadam and extending northerly a distance of 5,400 feet, was awarded to Joseph McCormick, of East Providence.

A section of highway in the town of Foster, beginning at the westerly end of State macadam and extending westerly a distance of 4,921 feet, was awarded to Arthur W. Steere, of Greenville, R. I.

A section of highway in the town of Glocester, beginning at the westerly end of State macadam and extending westerly a distance of 13,200 feet, was awarded to the Lane Construction Corporation, of Meriden, Connecticut.

A section of highway in the town of Glocester, beginning at the westerly end of State macadam and extending westerly and northerly a distance of 5,280 feet, was awarded to Arthur W. Steere, of Greenville, R. I.

A section of highway in the town of Johnston, beginning at the westerly end of State macadam and extending westerly to the Scituate line, a distance of 11,180 feet, was awarded to the town of Johnston.

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A section of highway in the towns of Johnston and North Providence, beginning at the easterly end of State macadam in Johnston and extending easterly and southerly to the Providence line, a distance of 15,149 feet,was awarded to Arthur W. Steere, of Greenville, R. I.

A section of highway in the town of Smithfield, beginning at Greenville and extending easterly a distance of 10,560 feet was awarded to Joseph McCormick, of East Providence.

Kent County.

A section of highway in the town of Coventry, beginning at the westerly end of State macadam and extending westerly a distance of 5,280 feet, was awarded to John Bristow, of Narragansett Pier.

A section of highway in the towns of West Greenwich and Coventry, beginning at the northerly end of State macadam in West Greenwich and extending northerly and westerly a distance of 10,560 feet, was awarded to John Bristow, of Narragansett Pier.

A section of highway in the towns of Warwick and Cranston on the Post Road, beginning at northerly end of State macadam and extending northerly a distance of 14,150 feet, was awarded to Charles A. Johnson, of Pontiac, R. I.

Washington County.

A section of highway in the town of Exeter, beginning at the westerly end of State macadam and extending westerly and southerly a distance of 15,840 feet. This contract was awarded to Amos D. Bridge, of Hazardville, Connecticut.

A section of highway in the town of Richmond, beginning at the northerly end of State macadam and extending northerly a distance of 8,200 feet, was awarded to Amos D. Bridge, of Hazardville, Connecticut.

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A section of highway in the town of Hopkinton, beginning at the westerly town line and extending westerly and northerly a distance of 10,560 feet, was awarded to John Bristow of Narragansett Pier.

A section of highway in the town of Narragansett, beginning at the southerly end of town macadam and extending southerly a distance of 5,280 feet, was awarded to Amos B. Bridge, of Hazardville, Connecticut.

A section of highway in the town of North Kingstown, beginning at the southerly end of State macadam and extending southerly 12,835 feet, was awarded to Kettell and Maglone, of North Kingstown.

A section of highway in the town of North Kingstown, beginning at the N. Y., N. H. &. H. R. R. and extending westerly on Ten Rod Road 2,640 feet, was awarded to Kettell and Maglone, of North Kingston.

A section of highway in the town of South Kingstown, beginning at the Matunac Road and extending southerly 5,280 feet, was awarded to John Bristow, of Narragansett Pier.

A section of highway in the towns of Westerly and Charlestown, beginning at the northerly end of State macadam and extending northerly 13,200 feet, was awarded to John Bristow, of Narragansett Pier.

Bristol County.

A section of highway in the town of Barrington, beginning at the southerly end of State macadam and extending southerly a distance of about 9,000 feet, was awarded to Joseph McCormick, of East Providence.

A section of highway in the town of Bristol, beginning at the northerly end of State macadam and extending northerly to the Warren

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line, a distance of 10,335 feet, was awarded to Luke Callan, of Bristol, R. I.

A section of highway in the town of Warren, beginning at the northerly end of State macadam and extending northerly a distance of about 6,300 feet, was awarded to John Bristow, of Narragansett Pier.

Newport County.

A section of highway in the town of Jamestown, beginning at the northerly end of State macadam and extending northerly a distance of 5,200 feet, was awarded to Alton Head.

A section of highway in the town of Little Compton, beginning at the northerly end of State macadam and extending northerly a distance of 10,560 feet, was awarded to Herbert E. Cushing, of Massachusetts.

A section of State highway in the town of Middletown, beginning at One Mile Corner and extending northerly to Two Mile Corner, a distance of 4,050 feet, was awarded to J. Overton Peckham, of Middleton, R. I.

A section of highway in the town of New Shoreham, beginning at the northerly end of State macadam and extending northerly a distance of 5,280 feet, was awarded to John C. Champlin, of New Shoreham.

A section of highway in the town of Portsmouth, beginning at the northerly end of State macadam and extending northerly a distance of 13,200 feet, was awarded to John Bristow, of Narragansett Pier.

A section of highway in the town of Tiverton, beginning at the northerly end of State macadam and extending northerly a distance of 5,125 feet, was awarded to Joseph McCormick, of East Providence, R. I.

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RECEIPTS AND EXPENDITURES OF THE STATE BOARD OF PUBLIC ROADS.

Appropriation for office and traveling expenses.		$5,000 00
Travelling and other expenses of the Board	$726 10	
Engineering assistants to Board	2,015 36	
Clerk hire and office supplies	2,255 16	4,996 62
Balance		$3 38

CONSTRUCTION ACCOUNT.

Balance on hand Jan. 1st, 1906	$35,874 54	
Appropriation for construction	25,000 00	
Received from towns for additional width	1,720 50	
Received from automobile licenses	2,146 00	$64,741 04
Expenditures for year ending Dec. 31st, 1906		41,419 92
Balance		$23,321 12

STATE HIGHWAY CONSTRUCTION.

Amount available for 1906	$200,000 00	
Amount received from towns for additional width	6,778 74	$206,778 74
Expenditures for year ending Dec. 31st. 1906		175,363 77
		$31,414 97
Amount available Jan. 1st, 1907		400,000 00
Balance on hand		$431,414 97

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Burrillville, 1906,
Before Improvement.

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Burrillville, 1906,
After Improvement.

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U. OF MICH.

Cranston, 1905,
Before Improvement.

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Cranston, 1905,
After Improvement.

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UNIV OF MICH.

East Providence, 1906,
Before Improvement.

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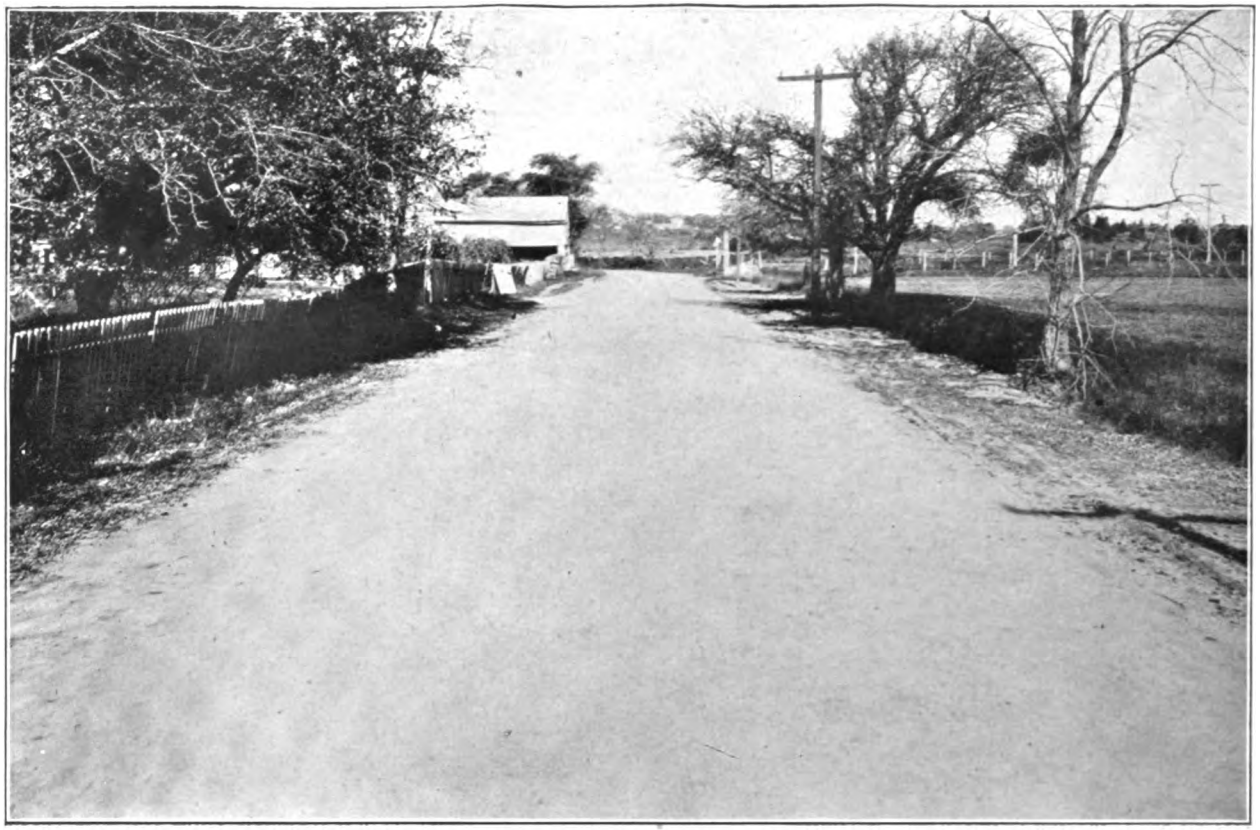

East Providence, 1906.
After Improvement.

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East Providence-Waterman Ave., 1906,
Before Improvement.

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Foster, 1906.
Before Improvement.

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Glocester, 1905,
Before Improvement.

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Glocester, 1905,
After Improvement.

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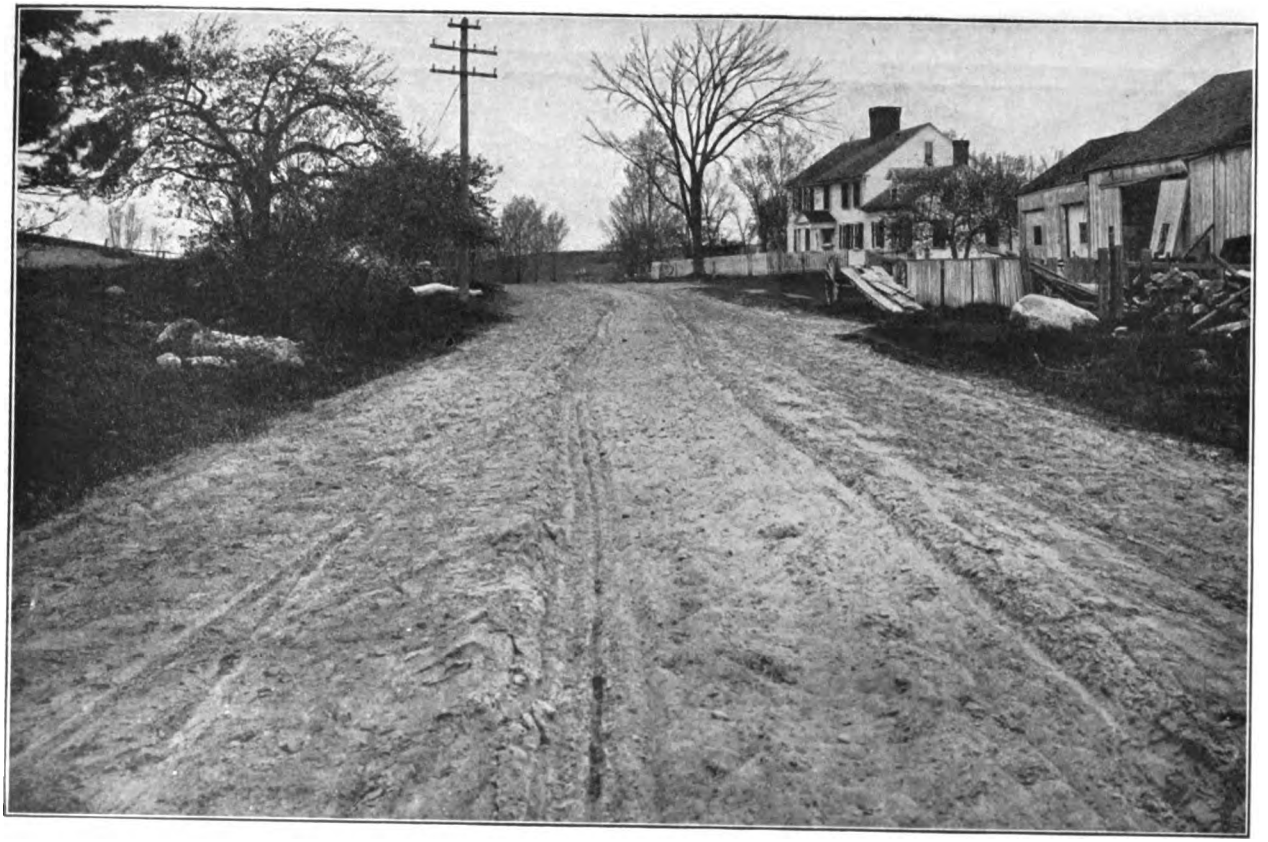

Glocester, 1906,
Before Improvement.

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Glocester, 1906,
After Improvement.

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Glocester-Harrisville, 1906,
Before Improvement.

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Johnston, 1906,
Before Improvement.

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Johnston and North Providence, 1906,
Before Improvement.

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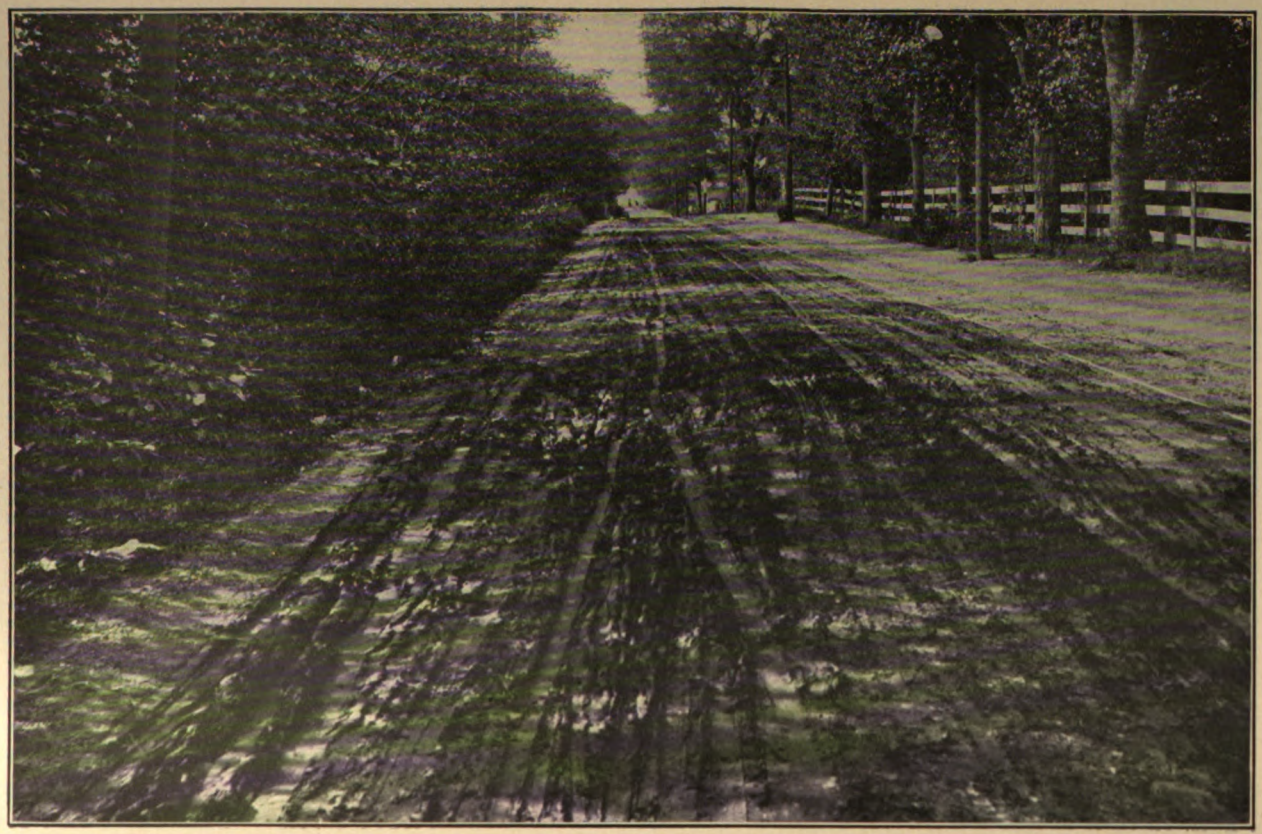

North Providence, 1905,
Before Improvement.

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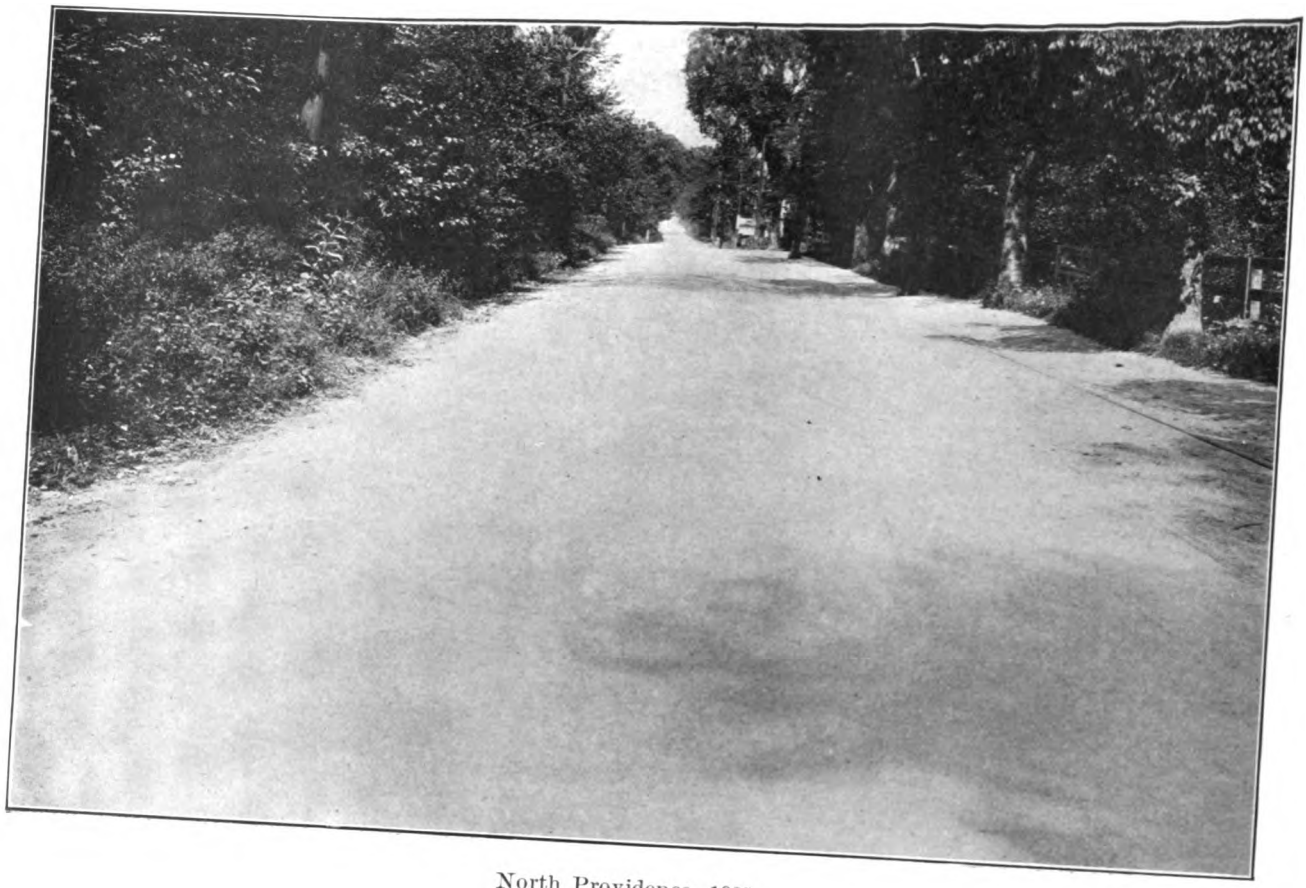

North Providence, 1905,
After Improvement,

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Smithfield, 1905,
Before Improvement.

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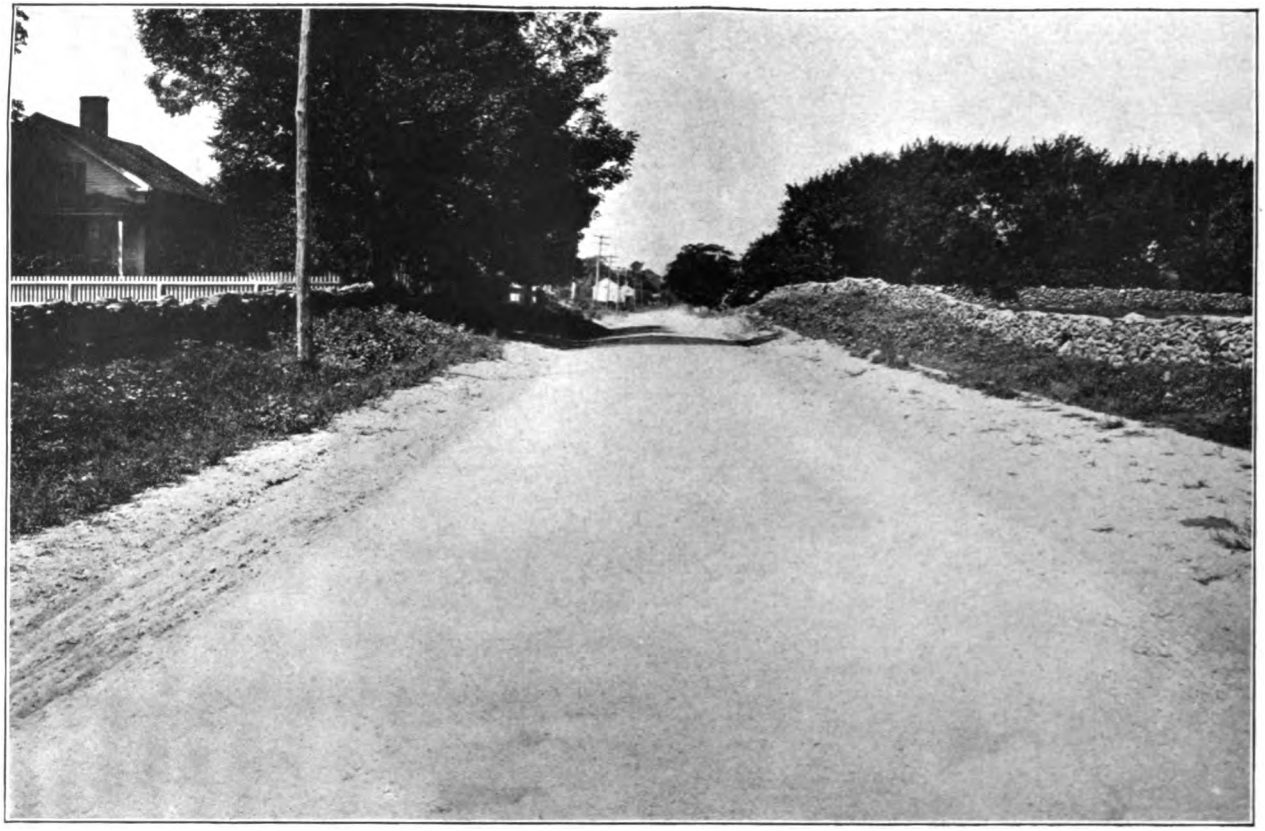

Smithfield, 1905,
After Improvement.

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Smithfield, 1906,
Before Improvement.

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Coventry, 1905,
Before Improvement.

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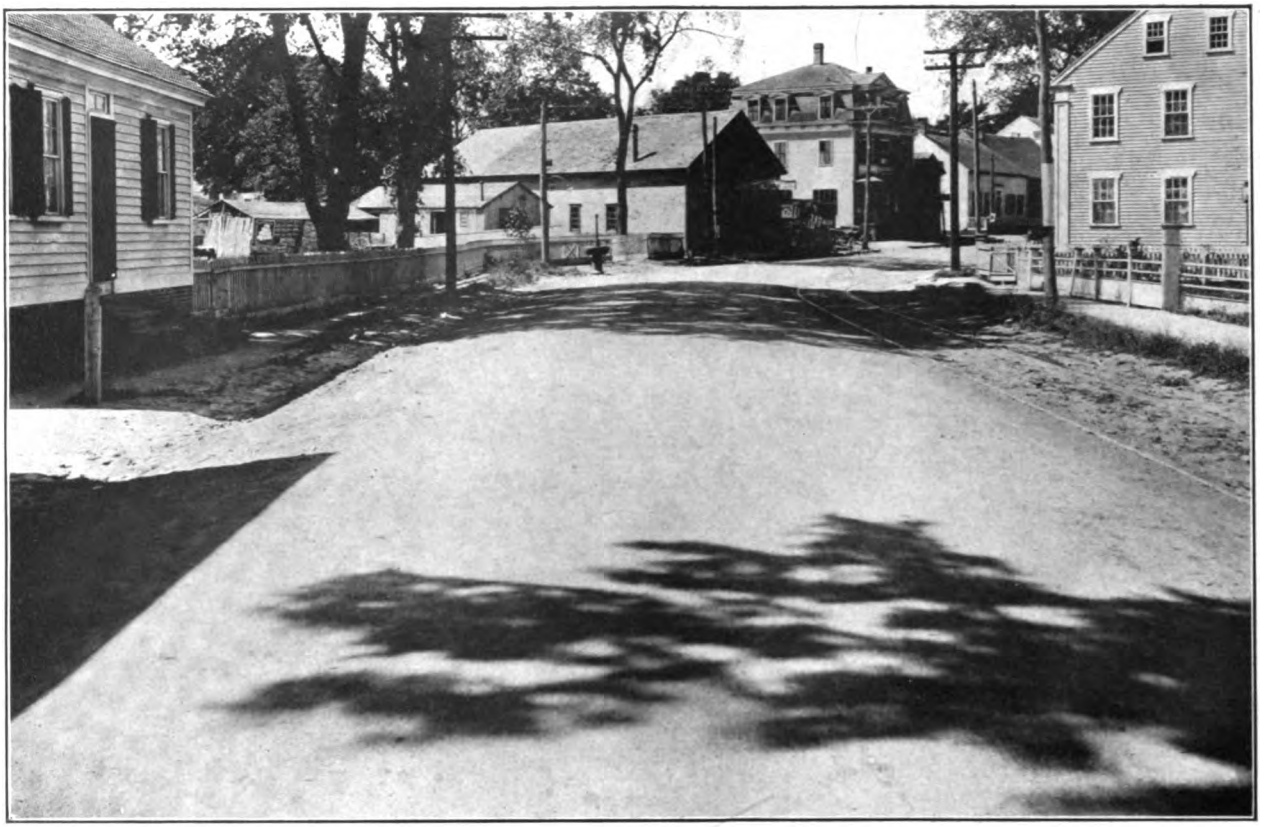

Coventry, 1905,
After Improvement.

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Coventry, 1906,
Before Improvement.

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Coventry and West Greenwich, 1906,
Before Improvement.

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Warwick and Cranston, 1906,
Before Improvement.

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Warwick and Cranston, 1906,
After Improvement.

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Exeter, 1906,
Before Improvement.

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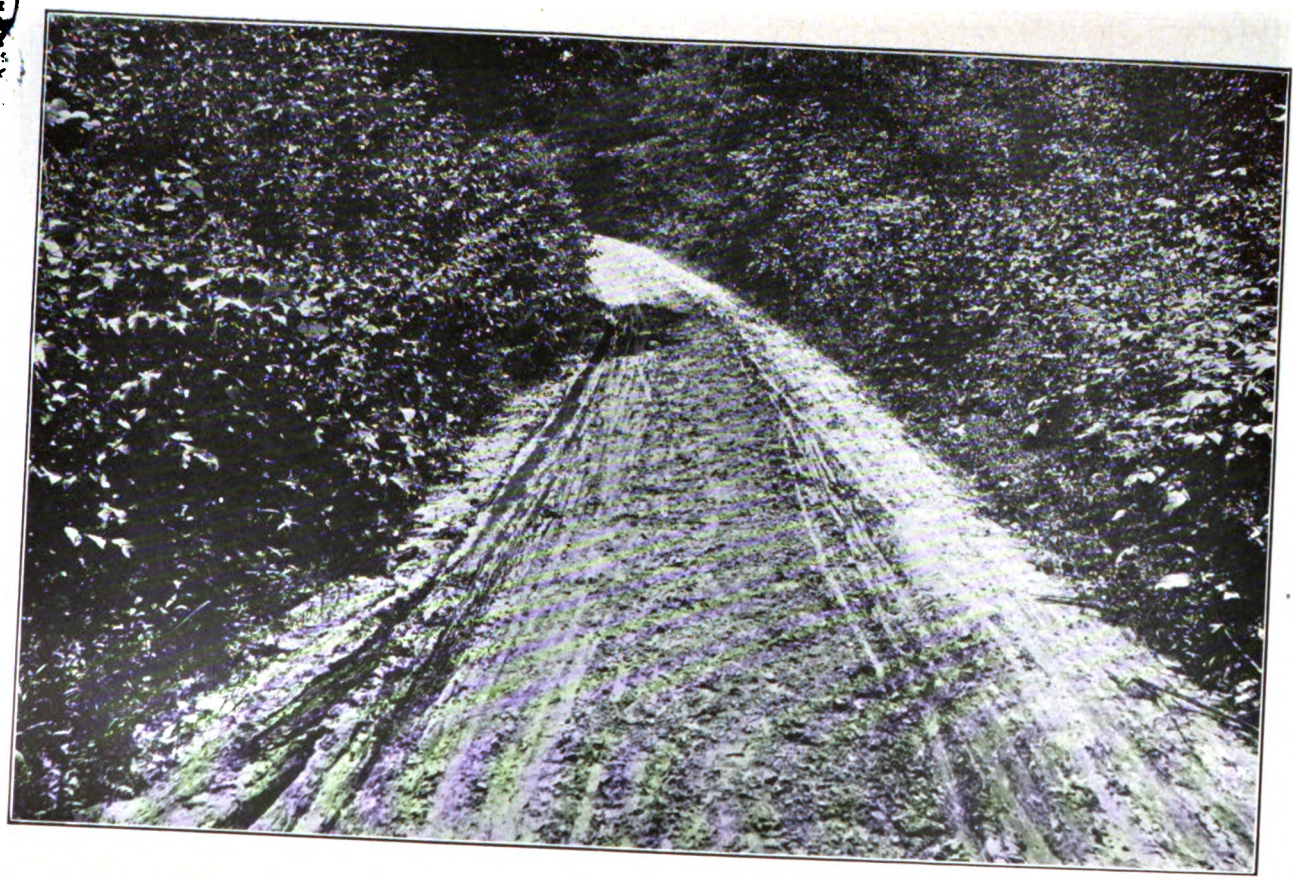

Exeter-Pine Hill, 1906,
Before Improvement.

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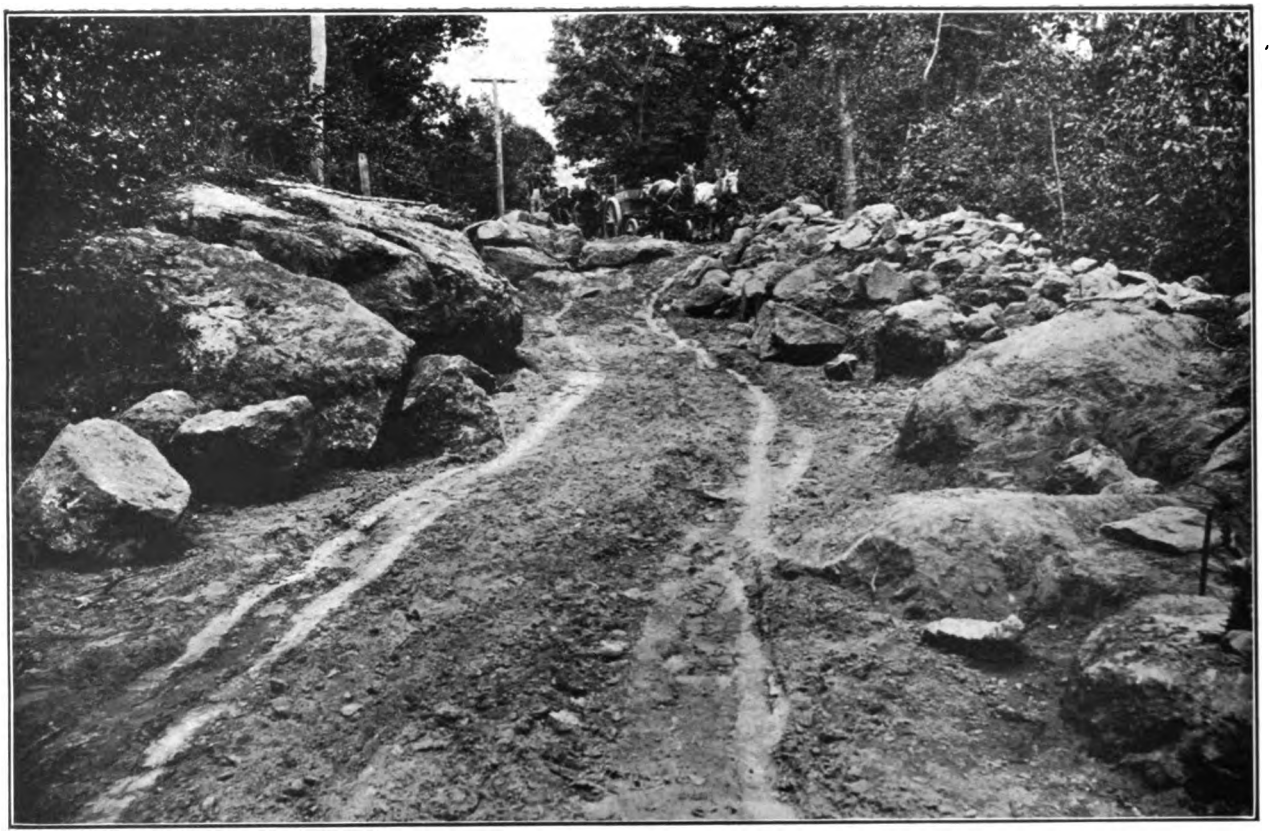

Exeter-Pine Hill, 1906,
During Construction.

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Hopkinton, 1906,
Before Improvement.

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Narragansett, 1906,
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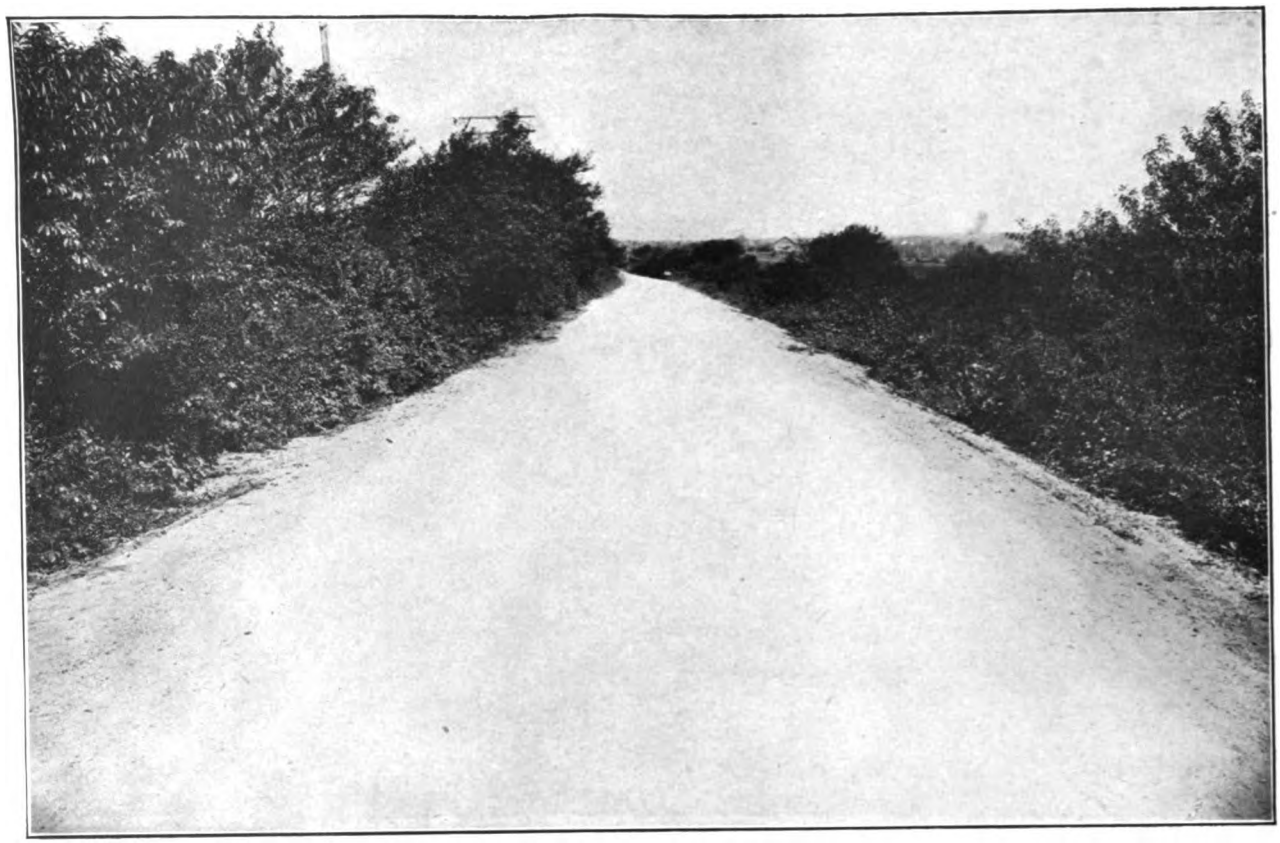

Narragansett, 1906.
After Improvement.

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North Kingstown, 1906,
Before Improvement.

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North Kingstown–Wickford, 1906,
Before Improvement.

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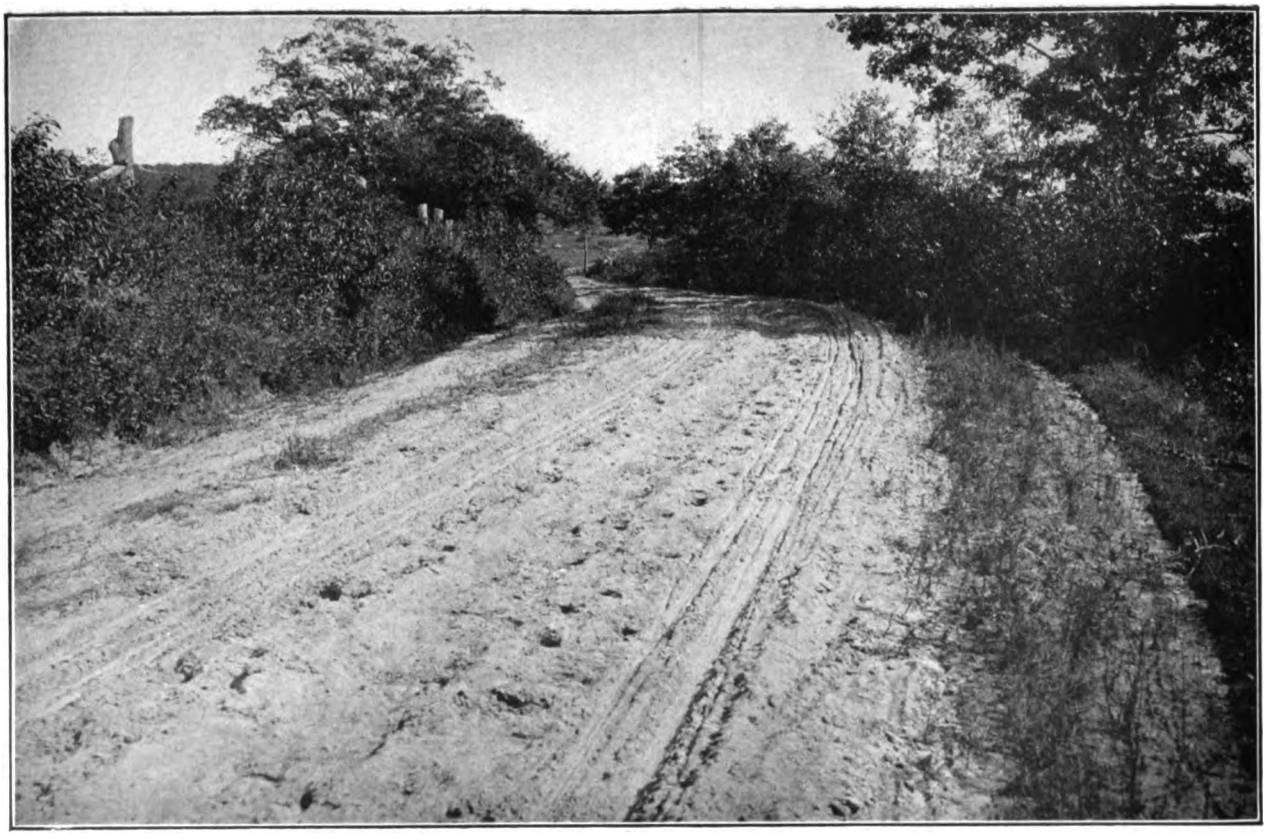

Richmond, 1905,
Before Improvement.

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Richmond, 1905,
After Improvement.

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UNIV. OF MICH.

Richmond, 1906,
Before Improvement.

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South Kingstown, 1906,
Before Improvement.

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Westerly and Charlestown, 1906,
Before Improvement.

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Barrington, 1900,
Before Improvement.

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UNIV. OF MICH.

Bristol-Ferry Road, 1905,
Before Improvement.

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Bristol-Ferry Road, 1905,
After Improvement.

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Bristol, 1906,
Before Improvement.

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Warren, 1905,
Before Improvement.

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Warren, 1905,
After Improvement.

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Warren, 1906,
Before Improvement.

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Jamestown, 1905,
Before Improvement.

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Jamestown, 1905,
After Improvement.

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Jamestown, 1906,
Before Improvement.

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Little Compton, 1906,
Before Improvement.

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Middletown, 1906.
Before Improvement.

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New Shoreham, 1906,
Before Improvement.

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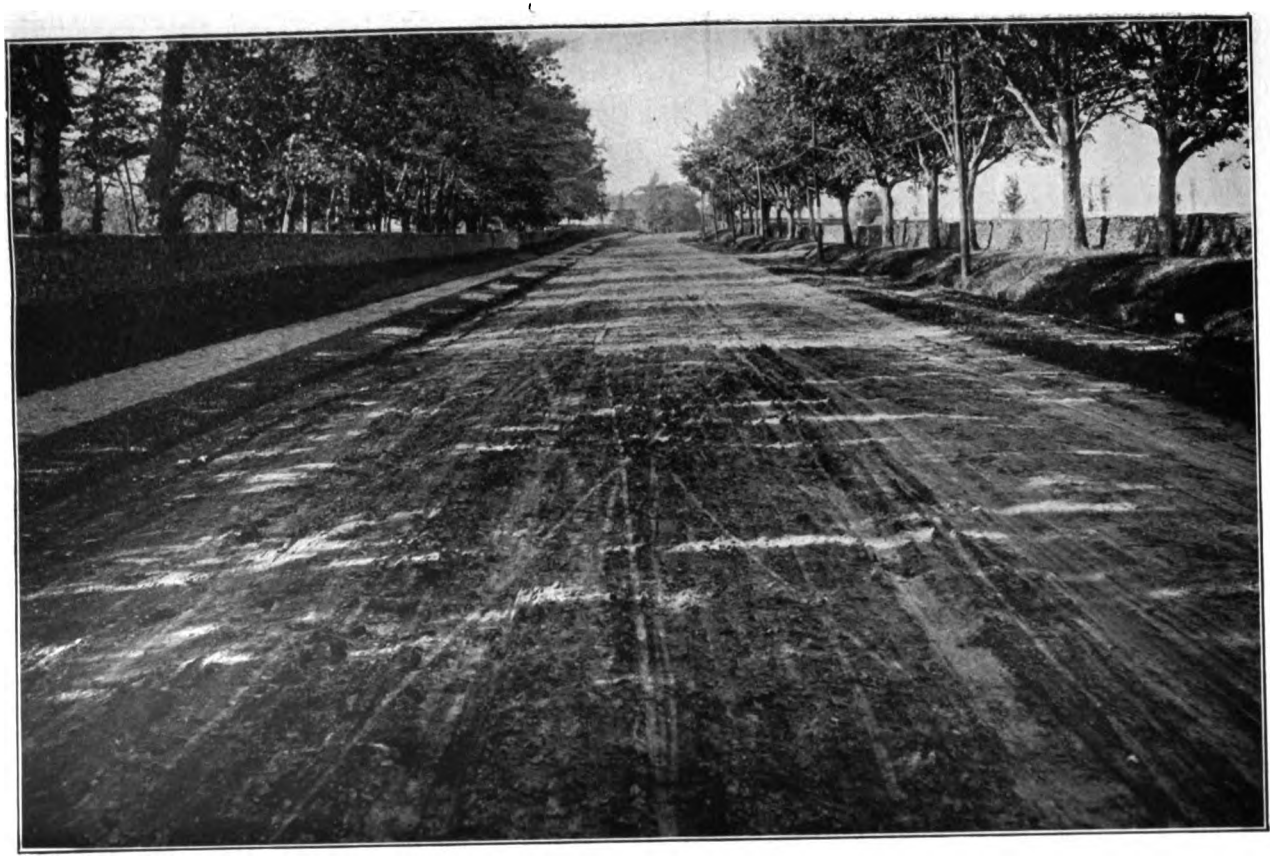

Portsmouth, 1906,
Before Improvement.

UNIV. OF WICH.

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Portsmouth, 1906,
After Improvement.

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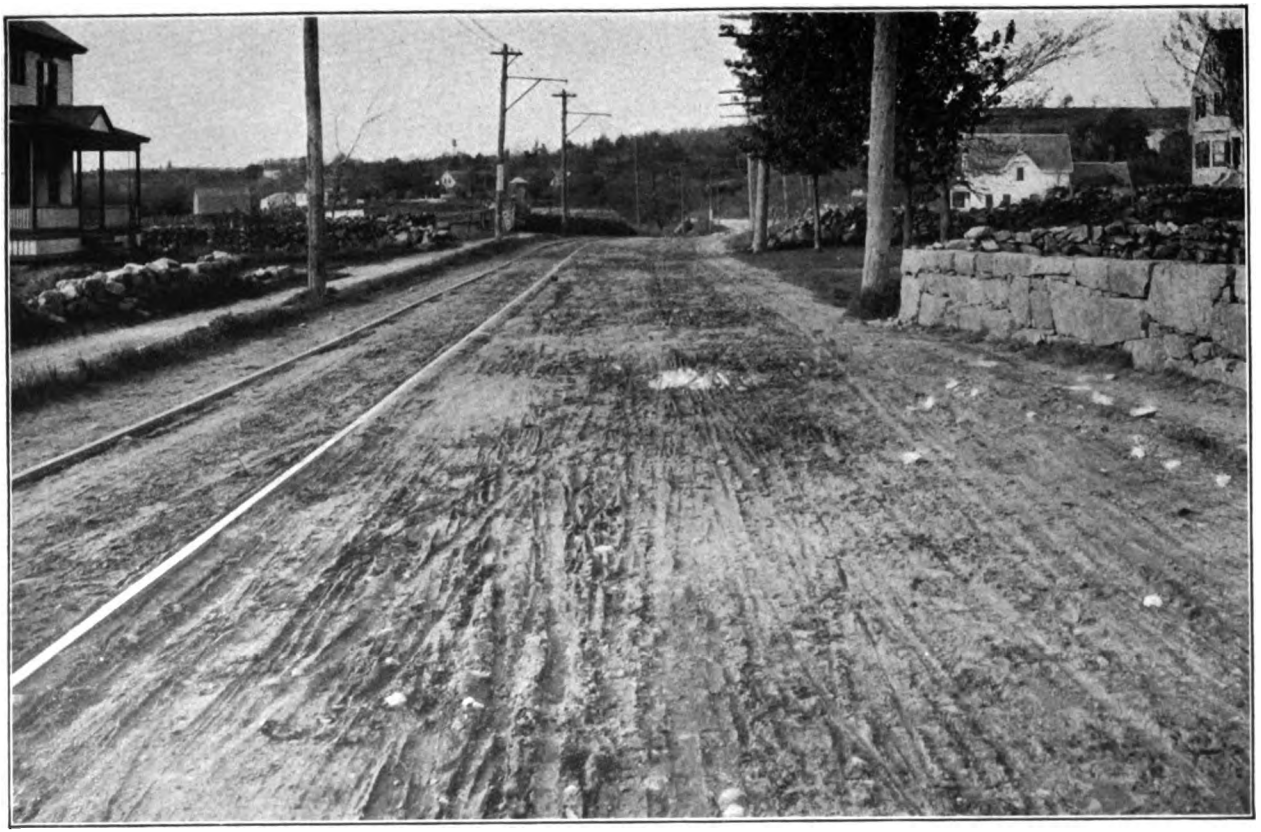

Tiverton, 1906,
Before Improvement.

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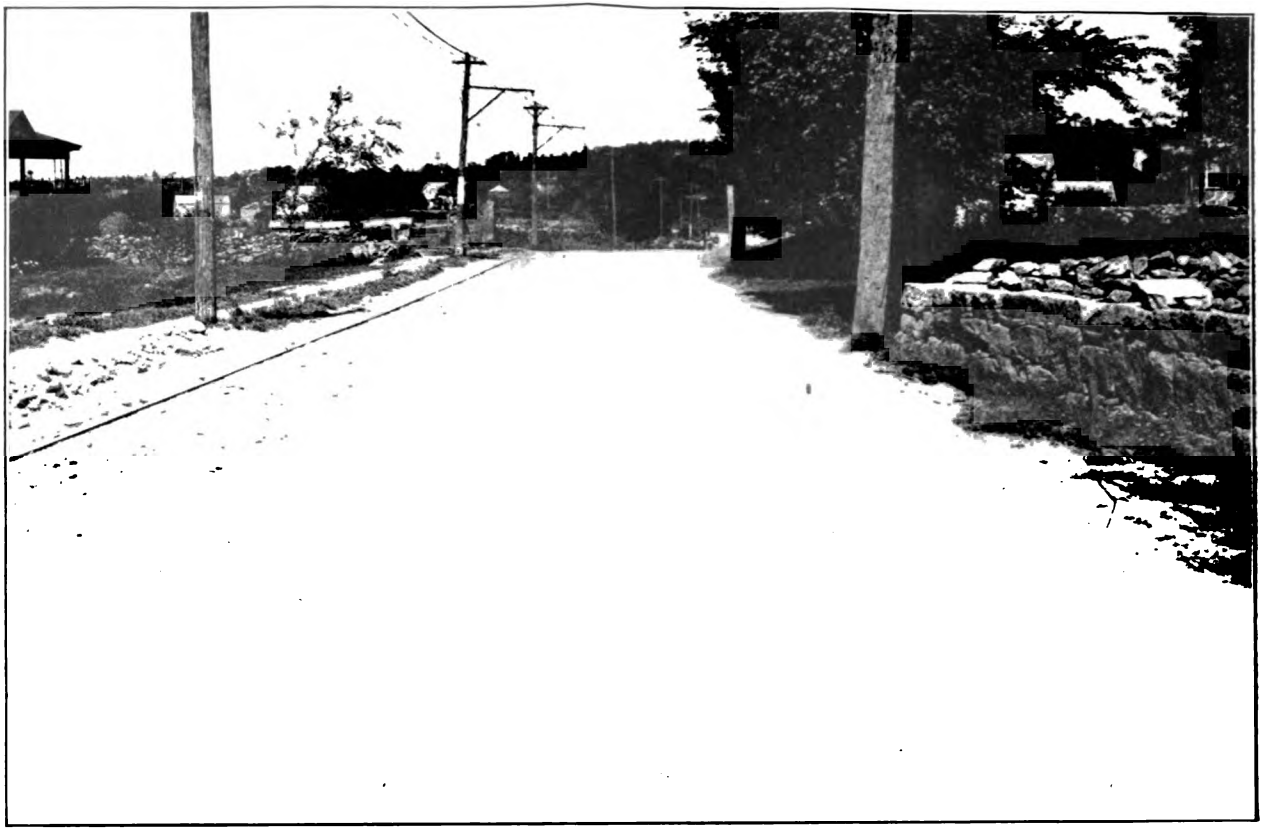

Tiverton, 1906,
After Improvement.

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State of Rhode Island and Providence Plantations.

JANUARY SESSION, 1902.

CHAPTER 982.

AN ACT TO PROVIDE FOR THE CONSTRUCTION, IMPROVEMENT, AND MAINTENANCE OF STATE ROADS.

Passed April 8, 1902.

It is enacted by the General Assembly as follows:

State board of public roads, how appointed and term of office.

SECTION 1. The governor, with the advice and consent of the senate, shall appoint a state board of public roads, to consist of five suitable persons who are qualified electors of the state, one from each county of the state, to hold office: one for five years, one for four years, one for three years, one for two years, and one for one year, from the first day of February, 1902. At the January session of the general assembly, A. D. 1903, and at the January session of the general assembly in each year thereafter, the governor, with the advice and consent of the senate, shall appoint such person or persons to succeed the member or members of said board whose terms will next expire; and the person or persons so appointed shall hold their office until the 1st day of February in the fifth year after their appointment. Any vacancy which may occur in said board when the senate is not in session shall be filled by the governor until the next session thereof, when he shall, with the advice and consent of the senate, appoint some person to fill such vacancy for the remainder of the term. The members of said board shall be sworn to the faithful discharge of their duties, and may be removed by

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the governor, with the advice and consent of the senate, for such cause as he shall deem sufficient and shall express in the order of removal.

Appropriation for clerk hire and engineer assistance.

SEC. 2. Said board may expend annually for clerk hire, for engineer assistance, and for the incidental expenses connected with the performance of the duties of their office, the sum of five thousand dollars, which sum is hereby annually appropriated for that purpose. Said board shall be provided with an office in the state house. The members of said board shall serve without remuneration, except for their necessary travelling and other expenses incurred in the performance of their duties. The state auditor is hereby authorized to draw his order upon the general treasurer for any of said expenditures, when certified to by the chairman and secretary of said board, who shall both be members of said board.

To have an office in the state house.

To serve without pay.

To make an annual report.

SEC. 3. Said board shall annually make a report to the general assembly, during the month of January, setting forth in detail all its transactions during the preceding year and making such recommendations for relocating, regrading, or improving the main highways of the state as it shall deem for the best interests of the entire state, having regard also to the connection of such main highways with the main highways of adjoining states, and reporting with maps showing the present location and grades, the proposed location and grades, and the proposed construction or improvements, and the probable cost of making such change of location or grade or of making such construction or improvements. Such report, to be presented to the general assembly at its January session, A. D. 1903, shall present as near as possible a comprehensive plan of all the main highways of the state which it is desirable to relocate, regrade, construct or improve, with the recommendations of said board as to the most desirable period in which to carry on said work to completion. No work, other than preliminary surveys, shall be done upon any of said main highways until said report shall

Report, what to contain.

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have been approved by the general assembly and the money appropriated for such purpose. Said board shall thereupon direct and control, according to law, the expenditure of all such appropriations, and is hereby authorized to make all contracts necessary for that purpose: *Provided, however*, that not more than one-third nor less than one-seventh of the net available appropriation for road improvement made by the general assembly shall be expended in any county during any one year, unless otherwise specially ordered by the general assembly at the time of making such appropriation.

No work other than surveys to be done until report is approved by general assembly.

Appropriation to be apportioned, how

SEC. 4. All main highways so improved by said board shall be constructed or improved to a uniform width of fourteen feet, exclusive of shoulders or gutters, except that any town or city desiring to have improved a greater width of such highway may agree in writing with said board for such additional width of improved main highway as it may desire, provided the entire expense of such additional width of improved main highway be paid by such town or city to the general treasurer, to be credited to the amount available for use by said board for the purposes of this act.

Highways constructed or improved to be of uniform width of 14 feet.

Exception.

SEC. 5. All road construction or improvements made by said board shall be, and all repairs may be, performed by written contract, made by said board in behalf of the state, and after advertisement, by order of said board, has been published for at least twenty days in one or more public newspapers published in the county where such road lies, and in at least two public newspapers published in the city of Providence, inviting sealed proposals for such road construction or improvement, to be made under the supervision and subject to the approval of said board and in accordance with its plans and specifications; and said advertisements shall state the time and place said plans and specifications may be examined, and when the proposals made in answer to said advertisements will be opened, and shall reserve the right of said board to reject any and all proposals:

Construction, etc., to be performed by written contract.

Proposals to be advertised.

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Towns to have preference over proposals of other persons, when.

Provided, that the proposal of any town or city possessing or having the use of adequate road machinery, made in answer to the aforesaid advertisements, not exceeding the minimum sum named in any other proposal made as aforesaid for performing said road construction or improvement, shall have the preference, for such main highway or portion of such main highway lying within the limits of such town or city, over the proposal of any other person.

Bond to be given by successful bidder.

SEC. 6. The person whose proposal or bid is accepted by said board, except when any town or city shall be the contracting party, shall be required to give bond, in a sum not less than fifty per cent. of the contract price, to indemnify the town or city where such road lies against damage while such road is being constructed or improved, and the state shall not be liable for any damage occasioned thereby; and every contract made for such construction or improvement shall provide for a forfeiture of such sum or sums as said board may deem proper, for failure to complete, according to contract, such road construction or improvement within the specified time; and every public road, any part of which is constructed or improved as aforesaid, or after the plans and specifications aforesaid have been filed and contract for the construction or improvement of such road or part thereof has been made as aforesaid, shall be known as a state road and be kept in good repair from the time of said construction and improvement at the expense of the state under the supervision of said state board. Every such town or city shall at its own expense keep such state road within its limits, respectively, sufficiently clear of snow and ice so the same shall be reasonably safe for travel as now required by law, and shall at once notify in writing the state board of public roads or its employees of any defect or want of repair of such roads.

Provision for forfeiture for failure to comply with contract.

Road constructed, etc., to be known as a state road, and to be maintained at expense of state.

Towns to keep said roads free from snow and ice.

SEC. 7. Whenever said board shall relocate, regrade, or improve any main highway, it shall cause the same to be sur-

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veyed and platted, and shall forthwith file a certified copy of such plat in the office of the recorder of deeds, or in the office of the town clerk if there be no recorder of deeds, in each city or town where such highway lies. No length of possession or occupation of land within the limits of any state road by an owner or occupier of adjoining land shall create a right to such land in the owner or occupier or a person claiming under him, and any fences, buildings, sheds, or other obstructions encroaching upon such state road shall upon written notice by said state board at once be removed by the owner or occupier of adjoining land, and if not so removed said board may cause the same to be removed upon the adjoining land of such owner or occupier; and any adjoining owner sustaining damage by the construction, widening, straightening, or by changing the grade of any road improved as a state road, if he shall agree with said state board upon the amount of damage so sustained, he shall be paid therefor, upon certificate of said board signed by its chairman and secretary, out of the appropriation made for such road improvement, but if he is unable to agree with said board as to the amount of such damage so sustained, he shall have the same remedy against the state as is now provided for like damages against towns and cities by chapter 72 of the General Laws: *Provided*, that the notices required to be given in such cases to town and city councils shall be given to said state board. The attorney-general shall in all cases act as the legal adviser of said state board.

Main highways to be surveyed and platted when relocated, regraded or improved.

No length of possession of land in a state road by any person shall vest title to same in such person.

Obstructions or encroachments upon state road to be removed, when.

Any owner of land adjoining a state road, sustaining damage by the construction, widening, etc. of, may be compensated, when.

SEC. 8. This act shall take effect upon its passage.

A true copy,

ATTEST:

CHARLES P. BENNETT,

Secretary of State.

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LIST OF PHOTOGRAPHS FOR 1906 REPORT.

Providence County.

Burrillville, 1906.....Before improvement.
Burrillville, 1906.....After improvement.
Cranston, 1905.....Before improvement.
Cranston, 1905.....After improvement.
East Providence, 1906.....Before improvement.
East Providence, 1906.....After improvement.
East Providence—Waterman Ave., 1906.....Before improvement.
Foster, 1906.....Before improvement.
Glocester, 1905.....Before improvement.
Glocester, 1905.....After improvement.
Glocester, 1906.....Before improvement.
Glocester, 1906.....After improvement.
Glocester-Harrisville, 1906.....Before improvement.
Johnston, 1906.....Before improvement.
Johnston and North Providence, 1906.....Before improvement.
North Providence, 1905.....Before improvement.
North Providence, 1905.....After improvement.
Smithfield, 1905.....Before improvement.
Smithfield, 1905.....After improvement.
Smithfield, 1906.....Before improvement.

Kent County.

Coventry, 1905.....Before improvement.
Coventry, 1905.....After improvement.
Coventry, 1906.....Before improvement.
Coventry and West Greenwich, 1906.....Before improvement.
Warwick and Cranston, 1906.....Before improvement.
Warwick and Cranston, 1906.....After improvement.

Washington County.

Exeter, 1906.....Before improvement.
Exeter-Pine Hill, 1906.....Before improvement.

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Exeter-Pine Hill, 1906.....During construction.
Hopkinton, 1906.....Before improvement.
Narragansett, 1906.....Before improvement.
Narragansett, 1906.....After improvement.
North Kingstown, 1906.....Before improvement.
North Kingstown-Wickford, 1906.....Before improvement.
Richmond, 1905.....Before improvement.
Richmond, 1905.....After improvement.
Richmond, 1906.....Before improvement.
South Kingstown, 1906.....Before improvement.
Westerly and Charlestown, 1906.....Before improvement.

BRISTOL COUNTY.

Barrington, 1906.....Before improvement.
Bristol-Ferry Road, 1905.....Before improvement.
Bristol-Ferry Road, 1905.....After improvement.
Bristol, 1906.....Before improvement.
Warren, 1905.....Before improvement.
Warren, 1905.....After improvement.
Warren, 1906.....Before improvement.

NEWPORT COUNTY.

Jamestown, 1905.....Before improvement.
Jamestown, 1905.....After improvement.
Jamestown, 1906.....Before improvement.
Little Compton, 1906.....Before improvement.
Middletown, 1906.....Before improvement.
New Shoreham, 1906.....Before improvement.
Portsmouth, 1906.....Before improvement.
Portsmouth, 1906.....After improvement.
Tiverton, 1906.....Before improvement.
Tiverton, 1906.....After improvement.

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State of Rhode Island and Providence Plantations.

Standard State Specifications for Stone Roads.

SPECIFICATIONS

For a road in town of.....county of.....
beginning at.....
.....
and extending.....
a distance of.....feet.....feet wide.

WORK TO BE PERFORMED.

1. The work to be performed will consist in furnishing all materials, tools, machinery, and labor necessary for the efficient and proper grading of roadway, side ditches, and side banks; laying, spreading, rolling, of road metal, and leaving the roadway complete in every manner ready for immediate use.

PLANS AND DRAWINGS.

2. The plan, profile, and cross section on file in the office of the State Board of Public Roads of Rhode Island show general location, profile, detail, and dimensions. The work will be constructed *in all respects* according to the above-mentioned plans, profile, and cross sections, which form part of the specifications.

3. Any variation, of location, profile, size, and dimensions from that shown on the plans, as may be required by the exigencies of construction, will in all cases be determined by the engineer; and the contractor shall not, on any pretense, save that of the written order of the State Board of Public Roads, deviate from the intent of the plans or specifications.

4. On all drawings, figured dimensions are to govern in cases of discrepancy between scale and figures.

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GRADING.

5. Under this head will be included all excavation and embankment required for the formation of the highway; cutting all ditches or drains about or contiguous to the road; removing all fences, walls, buildings, trees, poles, or other incumbrances; the excavation and embankment necessary for reconstructing cross or branch roads in cases where they are destroyed or interfered with in the formation of the roadway; and all other excavations and embankments connected with or incidental to the construction of the said road.

EXCAVATION.

6. The roadway, to the width of fourteen (14) feet, as shown on plan, must be excavated or built to the same curvature as that of the surface of the road when finished, the grade, from center to sides, must be as shown on plans.

7. The earth taken away from any cut or ditch shall be deposited where the engineer may direct, either within or without the lines of the road, but no earth shall be removed from the line of the road without the order of the engineer.

EMBANKMENT.

8. Material taken from the excavations, except when otherwise directed by the engineer, shall be deposited in the embankment, either on the roadway or sidewalks.

9. When there is not sufficient material in the excavations of the road to form the embankments, the deficiency must be supplied by the contractor from without the road. The character of said material and place of excavation must be approved by the engineer. Said material is to be paid for at the same price per cubic yard as specified in the contract for other excavations, unless otherwise agreed upon between the State Board of Public Roads and the contractor.

10. The embankments will be formed in layers of such depth, generally twelve (12) inches, and the material deposited and distributed in such manner as the engineer may direct, the required allowance for settling being added.

SLOPES.

11. Slopes in both embankments and excavations shall be one and one-half (1½) horizontal to one (1) vertical, unless otherwise ordered by the engineer.

SHAPING SURFACE FOR BROKEN STONE.

12. Before the broken stone is spread the roadbed shall be shaped to a true surface conforming to the proposed cross section of the highway, and rolled by a

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steam roller, unless otherwise ordered by the engineer. All depressions occurring must be filled with suitable material and again rolled, until the surface is smooth and hard, the width to be paid for to include only the width of broken stone.

MACADAM.

Broken Stone.

13. Broken stone consisting of..... shall be spread and rolled on the roadbed prepared as hereinbefore described, as follows:

The width of broken stone shall be.....( ) feet.

All broken stone used shall be in layers or courses. The bottom course shall consist of stone from one and one quarter (1¼) inches to two and one-half (2½) inches in their longest dimensions, the upper course of stone from one-half (½) inch to one and one-quarter (1¼) inches in their longest dimensions.

The bottom course shall be.....( ) inches deep at the centre and.....( ) inches deep at the sides after rolling. The top course shall be.....( ) inches deep at the centre and.....( ) inches deep at the sides after rolling.

After the two courses above described are thoroughly compacted, broken stone screenings shall be laid on, watered, and rolled until the mud flushes to the surface. The screenings so used shall not be larger than will pass through a half-inch mesh and shall contain all the dust. Care must be taken to lay on only enough of the screenings to cover the larger stones.

Each course, bottom, top, and binder, shall be rolled separately by a steam roller, unless otherwise ordered by engineer, and evened up with material of the same size and quality as has been used in that particular course, and to the satisfaction of the engineer.

All broken stone shall be spread from the carts by hand, or from a dumping board, or from self-spreading carts.

No soft or disintegrated stone shall be used.

If so ordered by the engineer, the thickness of the broken stone shall be increased or diminished at such points as he may direct.

The grade of the finished surface of the road shall present a crown of not less than three-quarters (¾) of an inch to the foot.

MANNER OF ROLLING.

14. In the rolling the roller must start from the side lines of the stone bed and work towards the centre, unless otherwise directed. The rolling shall at all

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times be subject to the directions of the engineer and inspector, who may, from time to time, direct such methods of procedure as in their opinion the necessities of the case may require.

QUALITY OF MATERIAL.

15. All stone must be as nearly cubical as possible, broken with the most approved modern stone-crushing machinery, free from all screenings, earth, and other objectionable substances, of uniform size, and the same kind and quality, or equally as good in every particular, as that shown in the engineer's office.

16. The contractor must furnish samples to the State Board of Public Roads of the kind of stone to be used in the work before the opening of the bids.

17. A shoulder of firm earth or gravel is to be left or made on each side, extending at the same grade and curvature of road to side ditches or gutters. This shoulder is to be rolled according to the directions of the engineer.

SIDE DITCHES OR GUTTERS.

18. The side ditches or gutters are to be excavated as per stakes furnished by the engineer, in order to give an easy flow of water, so that no water shall be left standing on the road or in the ditches, for all of which no extra payment will be made.

NO EXTRA PRICE.

19. No allowance in measure of depth of pavement will be made on any material which way be driven into the roadbed by rolling. The pavement, when completed, must conform to the grade and cross section and be satisfactory to the engineer, whose decision shall be final.

No extra work will be paid for unless the price has been agreed upon between the contracting parties, and endorsed upon the agreement, witnessed by the engineer.

All clay or gravel for shouldering or binder, and all extra hauling is to be done at the contractor's expense.

LEDGE EXCAVATION.

20. Only such ledge as requires blasting for its removal and boulders of one-half (½) a cubic yard or more in volume will be estimated as ledge excavation. No allowance for ledge excavation in the roadbed shall be made outside of or more than twelve inches below the lines indicated on the cross sections showing the finished surface.

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BIDS.

21. Bids will be received under these specifications for the road complete. The place per yard for excavation, macadam, etc., are intended for the use of the engineer in making estimates to the State Board of Public Roads of work done. No bids will be received in which all of the following items are not filled out: (1) Price per cubic yard for earth excavations, without classification, as per cross sections throughout the length and width of the road.

(2) Price per cubic yard for macadam road complete.

(3) Price (lump) for the whole road complete, according to above specifications and plans.

ESTIMATE OF QUANTITIES.

22. (1) Excavation, earth.....cubic yards.

(2) Macadam.....cubic yards, as specified.

These quantities are result of calculation, but are to be considered as approximate. The State will not be responsible for any excess above quantities, should any occur. The contractor is expected to satisfy himself, by a personal examination of the work contemplated, about the nature, character, and quantity of the labor and material required.

CHECK ACCOMPANYING BIDS.

23. Bids shall be accompanied by a certified check for two hundred dollars, payable to the State of Rhode Island. Said check to be returned to the bidder unless he fails to execute the contract should it be awarded to him. The check should be delivered to the State Board of Public Roads, or its secretary, who will give a proper voucher for its deposit.

LIABILITIES OF CONTRACTOR.

24. The contractor shall maintain sufficient guards by day and night to prevent accident from travel, and will be liable for any damage which may arise from his neglect to do so, or from omission on his part.

He shall keep the road sprinkled until the final certificate of completion by the engineer is given.

He is to commence and prosecute the work upon the road at such points as may be directed by the engineer, within.....days from and after the signing of the contract, and shall continue work thereon until completion, except as herein provided.

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He further agrees to complete the same on or before the.....
day of.....A. D.....

Ten dollars for each day that the work shall remain uncompleted, after the time allowed by contract, may be deducted as liquidated damages, from any moneys due contractor, unless otherwise agreed upon by the State Board of Public Roads, after presentation of certificate of the engineer recommending the extension of the time limit of completion.

The contractor will be required to furnish and preserve all stakes and bench marks made and established on the line of work until duly authorized by the engineer to remove the same.

The contractor shall not disturb the position of title stones (the corners of properties adjacent to the road), but where they appear he will either lift or lower them, under the personal supervision of the engineer.

ABANDONMENT OF CONTRACT.

25. If at any time the work under contract should be abandoned, or if at any time the engineer should judge and certify in writing that said work, or any part thereof, is unnecessarily delayed, or that the contractor is willfully violating any of the conditions or covenants of this contract, or is executing the same in bad faith, then, and in that case, the State Board of Public Roads shall notify the said contractor to discontinue all work under this contract. They may employ other parties to complete the work in such manner as they may decide, and use such material as may be procured upon the line of aforesaid work, and if necessary, to procure other material for its completion, and charge the expenses of the said labor and material to the contractor, which expenses shall be deducted from any moneys due him under contract. In case these expenses shall exceed the sum which would have been payable under the contract if the same had been completed by said contractor, he or his bondsmen shall pay the amount of excess to the State Board of Public Roads, on notice from the engineer.

ENGINEER.

26. The engineer is to be selected or appointed by the State Board of Public Roads, and paid by them. He is to furnish all surveys, profiles, plans, specifications, and estimates of quantities of all kinds before specifications are signed, and in such a clear manner that lump bids can be made upon the work. He shall furnish all lines and grades required for the completion of the work. He is to furnish estimates for quantities of work done before partial payments can be made. Should any difference arise between the contracting parties as to their meanings, his decisions on these matters are to be final and conclusive. The

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work is to be done according to his directions, and if any material of which he does not approve is brought upon the road, it is to be removed at the expense of the contractor. If the contractor fails or neglects to do any part of the work as specified, or as directed by the engineer, then in that case all other work shall be discontinued on notice from the engineer to the contractor, or to the superintendent or foreman in charge of the work for the contractor, until such time as the work complained of has been done to the satisfaction of the engineer; and the contractor will not be entitled to or allowed any compensation or extension of time for such discontinuation or suspension of the work.

WORKMEN.

27. The contractor shall employ competent men to do the work, and whenever the inspector shall inform him or his representative in charge, in writing, that any man on the work is unfitted for the place, or is working contrary to the provisons of the specifications or the instructions of the engineer and supervisor, he shall thereupon be discharged.

INSPECTION.

28. All directions and determinations necessary to give due and full effect to any of the provisions of these specifications shall be given by the engineer and inspector.

All material and workmanship of any kind shall be subject at all times to the inspection of the engineer and inspector. Whenever imperfect work is discovered, it shall be immediately repaired or replaced by the contractor, after due notification from the engineer and inspector.

SUB-LETTING OF CONTRACT.

29. The contractor shall not assign or sub-let any portion of this contract without the consent of the State Board of Public Roads.

EXTRA WORK.

30. The contractor agrees that he will do such extra work as may be required by the State Board of Public Roads, for the proper completion or construction of the whole work herein contemplated; that he will make no claim for extra work, unless it shall have been done in obedience to a written order from the engineer. The contractor shall receive for such extra work the actual cost of all materials furnished, as shown by paid vouchers, and for such labor and teams as are neces-

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sary, at the current prices in the locality, which shall have been previously agreed to in writing by the engineer and by the contractor, plus fifteen (15) per cent.

PAYMENTS.

31. Payments will be made on or about the first day of each month, for the value of the work completed by the contractor on the fifteenth of the previous month and not previously paid for as estimated by the engineer. Provided, that nothing herein contained be construed to affect the right, hereby reserved, of the State Board of Public Roads to reject the whole or any portion of the aforesaid work, should the certificate be found or known to be inconsistent with the terms of this agreement, or otherwise improperly given.

The said contractor further agrees that he shall not be entitled to demand or receive payment for any portion of this aforesaid work or material, except in the manner set forth in this agreement, until said work shall have been completed in accordance with the terms hereinbefore mentioned, and the engineer shall have given his certificate to that effect, whereupon the said Board of Public Roads will, within sixty days after such completion, pay, or cause to be paid, the said contractor, in cash, the whole amount of money then due the said contractor under this contract, excepting such sums or sum as may be lawfully retained under any of the provisions of the contract herein set forth.

BOND.

32. The contractor will be required to execute, within ten days of giving of contract, a bond, in such sum and with such securities as shall be approved by the State Board of Public Roads, conditioned for the faithful performance of the contract, to idemnify and save harmless the State of Rhode Island and the said State Board of Public Roads from all suits or actions of any name or description brought against them on account of any act or admission of the contractor or his agents, and for the faithful performance of the contract by the contractor, and to idemnify the town or city where such road lies against damage while such road is being constructed or improved. Said bond shall be in a sum of not less than fifty per cent. of the cost of the road when completed. Any change made in said plans, specifications, agreements, or quantities without the consent of the bondsman shall in no way vitiate said bond. The said contractor hereby further agrees that so much of the money due him, under and by virtue of his agreement, as shall be considered necessary by the State Board of Public Roads, may be retained by them until all such suits or claims for damages aforesaid shall have been settled and evidence to that effect furnished to the satisfaction of the State Board of Public Roads.

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The right to increase or decrease the quantity of work and to reject any or all bids is reserved.

.....

Engineer.

.....

.....

.....

.....

.....

State Board of Public Roads.

Approved this.....A. D., 190..by resolution of the State Board of Public Roads.

.....

Chairman.

.....

Secretary.

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State of Rhode Island and Providence Plantations.

STATE BOARD OF PUBLIC ROADS.

CONTRACT

FOR BUILDING A SECTION OF STATE HIGHWAY IN THE TOWN OF.....
....., COUNTY OF....., STATE OF RHODE ISLAND.

THIS AGREEMENT, made and concluded this .....day of.....
one thousand nine hundred and....., between the State of Rhode Island, by the State Board of Public Roads, of the first part, and.....
.....
.....
.....
....., part of the second part,

WITNESSETH, That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the said party of the first part, and under the penalty expressed in the bond bearing even date with these presents, and hereunto annexed, the said party of the second part agrees with the said party of the first part, at his own proper cost and expense, to do all the work and furnish all the material to construct and complete, ready for use, a section of State highway in the town of....., county of.....
....., and State of Rhode Island, in accordance with and as described in the specifications herein contained, and in full compliance with the terms of this agreement.

The proposed road is to be built in the town of ....., beginning
.....
.....
.....
.....

The amount to be paid by the party of the first part, to the party of the second

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part, for completing all the work on the above described road in accordance with the specifications, the sum of .....dollars ($).

IN WITNESS WHEREOF, the parties to these presents have hereunto set their hands the year and date first above written.

STATE OF RHODE ISLAND.

By the State Board of Public Roads.

.....
.....
.....
.....
.....
} *State Board of Public Roads.*

.....
.....
.....
} *Contractor.*

BOND.

KNOW ALL MEN BY THESE PRESENTS, That we.....
.....
.....
.....
.....as principal,
and.....
.....
.....
.....
as suret are held and firmly bound unto the State of Rhode Island in the sum of.....
.....
dollars (.....), to be paid to the said State of Rhode Island, or its certain attorney, its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors, and administrators, successors, or assigns, jointly and severally, firmly by these presents.

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THE CONDITION OF THIS OBLIGATION IS SUCH, That if the said principal.....
.....
.....
shall well and truly keep and perform all the terms and conditions of the foregoing contract for building a section of State highway in the.....
.....of....., on.....
part to be kept and performed, and shall indemnify and save harmless the said State of Rhode Island, as therein stipulated, then this obligation shall have no effect; otherwise it shall remain in full force and virtue.

.....[Seal.]
.....[Seal.]
.....[Seal.]

Witness: .....

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FORM OF AGREEMENT BETWEEN STATE AND TOWNS DESIRING ROADS OF EXTRA WIDTH.

This agreement, made and executed this.....day of..... A. D. 1903, by and between the State Board of Public Roads and the town of .....

WITNESSETH, That whereas said State Board of Public Roads has contracted to build and improve a main highway in said town of.....of the length of .....feet and (describe the location of highway); and whereas, said town is desirous of having said highway improved to a greater width than 14 feet, to wit, to the width of .....feet; now therefore the parties hereto agree that said highway shall be built and improved to the width of..... feet by said State Board of Public Roads, and that said town shall pay the cost of building and improving said highway for such additional width over and above said width of 14 feet, to wit, the width of.....feet, and said town agrees to pay to the General Treasurer of the State of Rhode Island, in accordance with the provisions of section 4 of Chapter 982 of the Public Laws, and cost of said additional width, as follows:

The estimated contract costs on the signing of said contract and any balance that may be due on the completion of said road.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand, the said town of .....executing these presents by..... .....its.....hereunto duly authorized by vote of

.....

.....

.....

.....

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TABLE SHOWING CHANGES IN MAXIMUM GRADES.

NAME OF ROAD.	Maximum old grade.	Maximum new grade.
Barrington	.....	.....
Bristol	3.80	3.80
Burrillville	10.40	6.30
Coventry	4.40	3.94
Coventry and West Greenwich	4.60	3.28
East Providence	7.20	5.26
East Providence-Waterman Ave	4.40	3.48
Exeter-Pine Hill	14.00	7.00
Foster	14.60	7.00
Glocester	11.10	5.60
Glocester-Harrisville	7.20	4.82
Hopkinton	9.40	6.22
Jamestown	6.40	4.18
Johnston	7.80	4.74
Johnston and North Providence	4.60	3.72
Little Compton	6.20	3.94
Middletown	4.40	4.16
Narragansett	3.00	2.40
New Shoreham	.....	.....
North Kingstown	.....	.....
North Kingstown-Wickford	7.80	5.24
Portsmouth	3.60	2.96
Richmond	4.60	2.56
Smithfield	8.80	6.76
South Kingstown	6.80	4.28
Tiverton	5.70	4.54
Warren	.....	.....
Warwick and Cranston	4.40	3.66
Westerly and Charlestown	8.80	4.70

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TESTS OF ROAD MATERIAL.

The Board has collected and sent to the Road Material Laboratory at Washington samples of rocks found in various parts of the State which are available for road metal. Under the direction of Logan Waller Page, Chief of the Division of Tests, Bureau of Chemistry, U. S. Department of Agriculture, tests have been made to determine the specific gravity of the rock, its hardness, toughness, per cent. of wear, French coefficient of wear, cementation value, water absorbed per cubic foot and mineralogical composition.

In Bulletin No. 79, U. S. Department of Agriculture, on the "Testing of Road Materials," by Logan Waller Page and Allerton S. Cushman, and Bulletin No. 85, on the "Cementing Power of Road Materials," by the same authors, may be found full descriptions of the various tests made on road materials in a modern laboratory. Following are brief abstracts from the above bulletins, sufficient in detail to explain the table, which gives the results of the tests of the samples sent from Rhode Island.

There are three chief properties essential to good road materials: they are hardness, toughness, and cementing or binding power.

Hardness will be defined as the resistance which a material offers to the displacement of its particles by friction. The measure of hardness will be inversely as the loss of weight arising from the scouring by an abrasive agent. Only one test has yet been devised for determining the hardness of road materials. This is the Dorry test, which consists in grinding specimens with sand of standard size and quality.

In the consideration of road material, toughness is understood to mean the power possessed by a material to resist fracture under im-

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pact. As the surface of a road is continually subjected to the pounding of traffic, it can be seen that toughness is an important property from the standpoint of the road builder. The test is made on rock cylinders with an impact machine. The number of blows required to destroy the test piece is used to represent the toughness.

The abrasion test from which is obtained the per cent. of wear and the French coefficient of wear is made in the following manner: The sample to be tested is first broken in pieces that will pass, in all directions, through a 2.4 inch ring, but not through a 1.2 inch ring. The stones are then cleansed, dried in a hot-air bath and cooled. Five kilograms are weighed and placed in one of the cylinders of the testing machine, the cover bolted on, and the cylinder rotated at the rate of 2,000 revolutions per hour for five hours. The contents of the cylinder are then placed on a sieve of 1-16 inch mesh. After the fragments of rock remaining have been cleansed, dried, and cooled, they are weighed and their weight subtracted from the original five kilograms. The difference obtained is the weight of detritus under 1-16 inch worn off in the test. The per cent. of wear can now be easily ascertained. It has been found that only the best varieties of rock give less than 100 grams of detritus, or 20 grams per kilogram, or 2 per cent. of their weight. The number 20 was therefore adopted by the French engineers as a standard of excellence. The French coefficient of wear may be obtained by the following formula: French coefficient of wear $=20\times\frac{20}{W}=\frac{400}{W}$, in which "W" is the weight in grams of the detritus under 1-16 inch in size obtained per kilogram used.

The binding or cementing power of rock dust is determined by an impact test carried on as described below. After the rock has been broken into sufficiently small fragments, it is placed in a ball mill and ground for two and a half hours. This ball mill contains two chilled-steel balls, which weigh 25 pounds each, and is revolved at the rate of 2,000 revolutions per hour. The dust thus obtained which will pass through a very fine sieve is mixed with water and made into briquettes. After cooling they are tested in an impact

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machine. The standard fall of the hammer is 0.39 inch, and this blow is repeated until the bond of cementation of the material is destroyed. The number of blows required to destroy the bond is noted, and the average obtained upon five briquettes is given as the cementing value.

TABLE SHOWING RESULTS OF LABORATORY TESTS ON RHODE ISLAND ROCKS.

TOWN.	NAME OF ROCK.	Specific gravity.	Weight per cubic foot.	Water absorbed per cubic foot.	Per cent. of wear.	Coefficient of wear.	Hardness.	Toughness.	Cementing value.
Bristol	Chlorite quartzite	2.8	175.0	.4	4.7	8.5	17.7	10	9
Bristol	Gneissoid granite	2.7	168.8	.3	2.8	14.3	15.5	10	3
Cranston	Feldspathic quartzite	2.8	175.0	.1	3.2	12.5	14.7	12	2
Cranston	Granite	2.8	175.0	.2	3.4	11.9	18.1	10	6
Cumberland	Altered peridotite	3.6	221.4	.3	4.3	9.3	11.6	12	14
Cumberland	Quartzite breccia	2.6	162.2	.7	2.9	14.0	.....	...	1
Cumberland	Hornblend granite	2.8	174.6	.3	1.6	25.6	15.0	12	1
East Greenwich	Biotite gneiss	2.7	168.8	.2	2.7	15.1	17.5	20	3
East Providence	Indurated sandstone	2.7	168.8	.3	3.0	13.4	17.9	7	12
East Providence	Chlorite gneiss	2.8	175.0	.46	4.6	8.6	15.7	8	Fair.
Jamestown	Metamorphic sandstone	2.7	168.0	.59	4.8	8.3	18.3	16	Fair.
Johnston	Amphibolite	3.1	193.8	.2	2.8	14.2	18.0	9	3
Johnston	Gneissoid granite	2.7	168.8	.3	2.2	18.2	16.7	12	1
Johnston	Hornblend schist	2.95	184.0	.75	3.0	13.2	18.3	10	Good.
Middletown	Quartzite	2.8	175.0	.3	2.8	14.4	18.2	...	3
Newport	Granitite	2.6	162.2	.6	3.0	13.5	17.0	15	1
North Providence	Micaceous quartzite	2.8	175.0	.4	2.6	15.5	12.6	21	3
Portsmouth	Arkosic gneiss	2.9	180.9	.3	4.2	9.6	10.5	10	4
Portsmouth	Feldspathic sandstone	2.7	168.0	.59	2.4	16.8	16.7	15	Fair.
Smithfield	Granite	2.6	162.5	.2	3.7	10.8	.....	10	1
Warren	Chloritic sandstone	2.7	168.8	.4	2.7	15.0	9.7	24	10
Warwick	Micaceous quartzite	2.65	165.0	.74	3.8	10.6	17.5	6	Low.
Warwick	Micaceous schist	2.75	172.0	.59	3.9	10.4	18.7	4	Good.
Westerly	Granite	2.7	165.3	.7	2.4	16.6	14.9	12	1

State highways built ..... 105.5 Miles.
State highways built by towns ..... 36.4 "
Town highways built ..... 68.4 "

210.3

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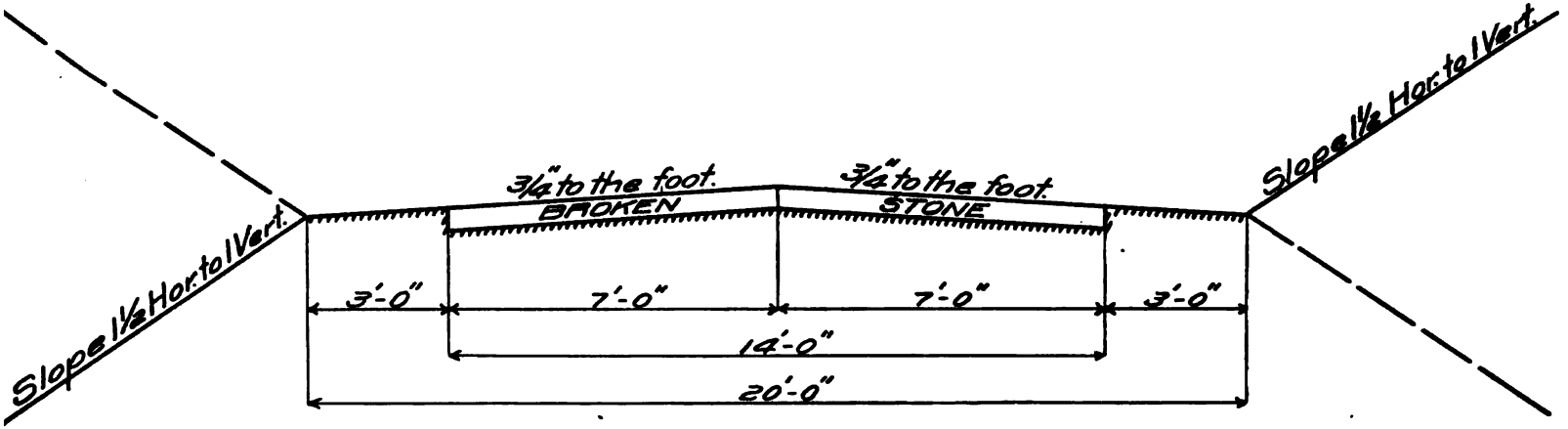
STANDARD SECTION OF STATE ROADS



Scale 1/4 inch = 1 foot

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THIRTY-FIRST ANNUAL REPORT

OF THE

HARBOR COMMISSIONERS,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE, R. I.
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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REPORT.

To the Honorable the General Assembly of Rhode Island, etc.:

The Board of Harbor Commissioners respectfully submits its thirty-first annual report.

APPOINTMENT TO THE BOARD.

Under the provision of Chapter 809 of the General Laws, passed January 29, 1901, His Excellency the Governor, with the advice and consent of the Senate, re-appointed J. Herbert Shedd of Providence to serve as harbor commissioner for a further term of three years, or "until the first day of February in the third year after his appointment," to wit, February 1, 1909.

HARBOR LINES.

No new harbor lines have been established in the State during the year 1906. The commissioners renew their recommendation of last year, and of the year 1904, that the harbor line established by the war department of the United States, between India Point and Fox Point in Providence, which differs in some places from the harbor line established by the State, be adopted and established by the State.

A survey of the east side of Providence river from Crawford street to Fox Point has been made during the year to determine the position of the wharf front with reference to the established harbor line. This was plotted at a scale large enough to allow a great amount of detail to be shown on the plans. The plans are on file in the commissioners' office.

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OBSTRUCTIONS.

Upon complaint being made it was determined, after several hearings and after investigation by the commissioners, that two fish traps off Warwick Neck and one fish trap off Pine Hill were menaces to navigation, and these were ordered removed.

Other obstructions and encroachments of minor importance have needed and have been given attention.

LICENSES, ETC.

Licenses have been granted during the year for structures in the public waters as follows:

No. 508. January 26, to Providence, Fall River & Newport Steamboat Company, to repair Dyer street wharf in Providence, by renewing portion of wharf now worn out.

No. 509. February 6, to Dailey Brothers, to remove 100 piles on land occupied by John R. White & Son, on Allen's avenue, foot of Blackstone street, in Providence.

No. 510. February 21, to Merchants and Miners Transportation Company, to replace three piles east of No. 3 wharf drop in Providence, and remove and replace four fender piles on outer side of the caplog.

No. 511. February 28, to Providence Steamboat Company, to remove one broken pile and replace same, at the Phillipsdale wharf in Phillipsdale, East Providence.

No. 512. March 14, to Joseph Olney & Son, Inc., to drive three piles in place of three old ones near the foot of James street on the east side of Providence river in Providence.

No. 513. April 18, to John W. Kirwin, to extend his wharf 100 feet in length by 4 feet in width opposite his property in Edgewood, Cranston.

No. 514. March 21, to Robert E. Smith & Company, to pull out

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40 old piles and stubs from out of the front of their wharf on South Water street, foot of Silver street, in Providence.

No. 515. April 25, to Providence, Fall River and Newport Steamboat Company, to repair wharf at Crescent Park, East Providence, pull three piles and drive eight new piles and put in two new pieces of caplog.

No. 516. March 28, to Edgewood Yacht Club, to drive about 20 piles, to replace broken ones at its wharf at the foot of Shaw avenue in Cranston.

No. 517. March 28, to William M. Harris, to extend his north wharf on his property opposite Allen's avenue in Providence.

No. 518. April 25, to American Oyster Company, to dredge 8 feet deep at low tide at its dock directly south of Washington bridge, in Providence, and to deposit material on its dock back of caplog.

No. 519. April 25, to C. L. Dimond, to drive a new fender pile in place of a broken one at his dock called the Clyde Line dock on South Water street, Providence.

No. 520. May 2, to John R. White & Son, Inc., to remove three broken fender piles and replace with new ones at their wharf on Allen's avenue at foot of Henderson street, in Providence.

No. 521. June 13, to Providence Dry Dock Company, to drive not more than 12 piles on the south side of its wharf in East Providence.

No. 522. July 18, to Washington Park Yacht Club, to relocate its landing floats at the foot of Alabama avenue in Providence, also to drive nine new piles in the locations shown on the accompanying plan.

No. 523. August 15, to The Providence Terminal Company, to construct and maintain a railroad across Seekonk river, in the city of Providence and town of East Providence.

No. 524. August 15, to Pearce Mauran Company, to erect and maintain a dolphin of five piles on the line showing the division be-

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tween rights of estate of Thomas F. Shepard and said company in East Providence, as defined by decree of the Supreme Court, all as shown on accompanying plan.

No. 525. August 29, to John W. Dodge, to maintain 14 piles with suitable planking to retain the filling, also to maintain all such parts of his wharf in Bullock's Cove in the town of Barrington as are within the harbor line and which are not included in permit given to W. H. Allen, July 13, 1880, including parts of the pile structure, the buildings thereon, and the filling between the wharf and the shore.

No. 526. August 29, to H. R. Horton Company, to renew fender piles alongside of wharf leased by them on South Water street near and south of Transit street, in Providence, now occupied by W. M. Merwin & Sons Co.

No. 527. August 29, to American Oyster Company, to build a wharf in the Seekonk river on the Providence side, north of India street.

No. 528. September 19, to The New York, New Haven & Hartford Railroad Company, to construct a pier from the shore northerly of Wilkesbarre Pier, westerly to the harbor line in East Providence, said pier to be filled with dredged material and protected on the harbor line, etc., by suitable riprap.

No. 529. October 3, to Merchants and Miners Transportation Company, to remove seven old piles and replace with new ones at their wharf on India street, foot of Benefit street, in Providence.

No. 530. October 17, to Rocky Point Oyster Company, to replace five worn out fender piles with new ones at the dock on Gano street, near Wickenden street, in the city of Providence.

No. 531. November 21, to H. E. Windsor, superintendent, to drive 20 piles and put two new caplogs on same, and upon the caplog place 17 floor beams, at Fall River wharf, (so called) on South Water street, in Providence.

No. 532. December 26, to George A. Turner, to repair wharf, replace 6 broken fender piles, new caplog, wall plate, floor beams,

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and planking. Wharf owned by Eben Simmons estate, on west side of Providence river, north of Point street bridge, in Providence.

ASSENT HAS BEEN GIVEN AS FOLLOWS:

1. January 24, to R. R. Higgins Company, to fill with suitable material so much of the pond as is on its property adjoining Bullock's Cove in Barrington.

2. February 28, to Providence Fish Company, to remove old piles and drive 8 new piles at its wharf on South Water street, foot of Planet street in Providence, also to replace 2 pieces of ribbon on front of dock.

3. March 7, to Thomas H. Connolly, to build a seawall and fill back of same opposite his property in Warren river in the town of Warren, the filling to be used to be oyster shells, stones, or other suitable material.

4. March 7, to Thomas H. Bell, to build a wharf to extend from the easterly shore of Bullock's Cove from land owned by him in Barrington.

5. March 7, to Blount & Hunt, to build an extension on the southerly side of their wharf in Warren river, in the town of Warren.

6. March 14, to John H. Kent, to maintain a wharf and building in Brush Neck Cove, in the town of Warwick, and to place a float, with gangway to the same, opposite to this building. The float is to be secured by strapping to four piles in such manner as to rise and fall with the tide.

7. March 21, to the Hope Land Company, to erect a bridge with a draw span across Bullock's Cove, in the town of East Providence.

8. March 21, to Sarah N. Cranston, to remove old piles, and portion of wall plates, and put in a new piece of wall plate, six new piles under caplog, replace fender piles and put in 3 rods through caplog, and sink in ground back of wall and repair damage done to wharf, in Providence on the east side of the Providence river.

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9. March 21, to trustees of Sophia Augusta Sherman, to remove 3 old piles and drive 6 new ones, remove 40 feet of caplog, and replace with new cap 6 x 12, 40 feet, put in 3 rods through wall plate, and through deadman, 20 feet back from dock front sunk in ground, in Providence, on the east side of the Providence river.

10. March 28, to Dailey Brothers, to deposit 3 or 4 scow loads of dredged material on Wm. M. Harris' land on Allen's avenue, in Providence, back of bulkhead.

11. March 28, to Sarah N. Cranston, to drive 25 fender piles to hold wall from falling into river at her wharf on South Water street, in Providence.

12. April 18, to S. S. Atwell, to remove five old piles at the head of his wharf at Field's Point, in Providence, also two on the north side and two on the south side, and replace them with new ones.

13. May 9, to Helen M. Beattie, to build a wharf opposite her property in Tiverton, on the east side of Seaconnet river, in accordance with her petition.

14. May 16, to George H. Covo, to build a breakwater opposite his property in Warren according to his petition.,

15. May 23, to M. E. Dailey to remove piles, planking, and timber in Bower's Cove, otherwise known as Watchemocket Cove, in East Providence, on the east side of Providence river.

16. June 6, to David R. Dodge, to build an extension to his wharf at Long Meadow, in the town of Warwick.

17. June 6, to Providence, Fall River and Newport Steamboat Company, to pull 31 piles and drive about 75 new ones, and put in 2 new caplogs about 160 feet long at its wharf at Rocky Point, in Warwick.

18. June 13, to Providence Terminal Company, to drive temporary piles in the Seekonk river for the purpose of testing the supporting power of the bottom of said river.

19. July 18, to James A. Garland, to construct two 5-pile dolphins

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across the head of his wharf at Potter's Cove, Prudence Island, in the town of Portsmouth.

20. August 15, to The Textile Finishing Machinery Company, to build either a seawall or a small bulkhead in Warren river on the south side of its property, in Warren, and fill back of the same with stones, foundry waste, or other suitable filling.

21. August 15, to The Textile Finishing Machinery Company, to build a seawall in Warren river on the north side of its property, in Warren, and fill back of the same with stones, foundry waste, or other suitable material.

22. August 29, to East Greenwich Sewer Commission, to build and maintain an outlet sewer into tide water opposite Division street, in East Greenwich.

23. September 5, to Frederic S. Nock, to renew necessary piles in breakwater in Greenwich Bay, in the town of Warwick, also to place 10 new piles and to continue the bulkhead north of railway, 175 feet more or less. Bulkhead to be of old railroad ties bolted together.

24. September 19, to Edmund J. Delahanty, to construct and maintain a wharf along the north line of his property, facing Mount Hope Bay, in Bristol.

25. September 19, to Stephen R. Tucker, to build a wharf opposite his property at Oakland Beach in Warwick Cove, in the town of Warwick.

26. September 19, to Emma F. Pierce, to build a wharf opposite her property at Riverside, opposite Cady avenue, in the town of Warwick.

27. October 10, to Israel Dube, to build a retaining wall 100 feet in length north of Wallis' retaining wall, running north to Kelley's Bridge in the town of Barrington.

28. October 10, to Ralph W. Farnham, to build a wharf on the east side of Prudence Island, in the town of Portsmouth, about 200 feet south of Sand Point.

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29. October 24, to the town of East Greenwich, by its Sewer Commissioners, to lay a line of 24″ cast-iron pipe for a sewer outlet, under the bottom extending from the foot of King street, in East Greenwich, into the Cove.

30. October 24, to Enterprise Transportation Company, to drive and maintain four nests of spring piles located as shown opposite the Old Clyde line pier, on the east side of Providence river, in Providence.

31. December 5, to John Carpenter, to build and maintain a wharf in Cowesset Bay, opposite his property in the town of Warwick.

NEWPORT COUNTY.

The commissioners continue to receive applications from shore owners in Newport county, for aid in their plans for improvements opposite their properties. The commissioners feel that they ought to renew, and they do renew, their recommendation that the benefits of the act in relation to harbor commissioners be extended to that county.

WORK OF THE UNITED STATES ENGINEER DEPARTMENT.

By the courtesy of Lieutenant-Colonel J. H. Willard, Corps of Engineers, United States Army, in charge of river and harbor improvements in this district, we have been furnished with data especially relating to these waters, and we have made extracts therefrom which may be found in the appendix.

Respectfully submitted,

J. HERBERT SHEDD,
ALFRED W. KENYON,
HENRY T. ROOT.

Harbor Commissioners.

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APPENDIX A.

EXTRACTS FROM REPORT OF CHIEF OF ENGINEERS, U. S. A., FOR 1906.

IMPROVEMENT OF SAKONNET RIVER.

Operations during the past fiscal year.—The work of enlarging the draw opening through the causeway known as "Stone Bridge," at Tiverton, R. I., was commenced August 22, 1905, by dredging under the contract with Charles M. Cole, of Fall River, Mass., at the rate of $1.87 per cubic yard, and was completed October 3, 1905.

There were 14,299.29 cubic yards of stone, measured in place, removed under the contract, which completed the project.

Operations contemplated for the fiscal year ending June 30, 1907.—No further work is contemplated.

AMOUNTS APPROPRIATED.

June 3, 1896	$20,000 00
March 3, 1899	20,000 00
Total	$40,000 00

CONTRACT IN FORCE.

Contractor: Charles M. Cole.

Amount and character of work: Dredging about 12,000 cubic yards.

Rate per cubic yard: $1.87.

Date of approval: August 8, 1905.

To commence: Within fifteen days after receipt of notice of approval by the Chief of Engineers.

To complete: Within three working months after commencement.

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COMMERCIAL STATISTICS.

Tonnage of merchandise using this river is difficult to estimate, as the river is a connecting waterway between Mount Hope Bay on the north, and the Atlantic Ocean on the south, and vessels pass through bound for and from ports both north and south. Statistics given for vessels and tonnage are upon reports received from Mr. J. B. Church, superintendent of the American Fisheries Company, Tiverton, R. I.

The vessels entering and leaving this waterway are as follows (each entrance and departure together being counted as one):

Character or class of service.	Number.	Average draft, feet.	Average tonnage.
Steam:—Freight and passenger	730	12	250
Fishing	800	13	250
Tugs	700	11	200
Pleasure boats	365	11	250
Sail:—Fishing boats	200	9	175
Oyster boats	365	6	25
Pleasure boats, large	150	12	175
Pleasure boats, small	1,000	6	20
Barges	10	14	900

IMPROVEMENT OF PAWTUCKET (SEEKONK) RIVER.

Operations during the past fiscal year.—The approved project for the expenditure of the appropriation of $30,000 made by the river and harbor act of March 3, 1905, provided for commencing the new channel of 16 feet depth by excavating a portion of the channel to that depth through the ledge rock at Pawtucket, reserving $5,000 of the appropriation for redredging portions of the 12 foot channel below the city which had shoaled. Proposals for the rock excavation were received, after the usual public advertisement, August 31, 1905, and the contract awarded to R. G. Packard Company, of New York, at the rate of $6.70 per cubic yard measured in place. Work under this contract commenced January 6, 1906, and was completed June 13, 1906, 3,420.3 cubic yards of rock being excavated from 200 feet in length of the channel.

Operations contemplated for the fiscal year ending June 30, 1906.—It is proposed to apply the balance on hand to redredging shoal places in the channels and any further appropriations, first to completing the 16-foot channel through the ledge

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rock, and after that dredging the channel below the Pawtucket wharves. Should sufficient funds be provided to carry the dredged channel up to Phillipsdale, after completing the channel through the rock, it would be advantageous to begin dredging at the lower end of the work.

Amounts Appropriated.

March 2, 1867	$17,000 00
July 11, 1870	8,000 00
March 3, 1871	7,000 00
June 10, 1872	10,000 00
March 3, 1873	10,000 00
July 5, 1884	50,000 00
August 5, 1886	30,000 00
August 11, 1888	35,000 00
September 19, 1890	30,000 00
July 13, 1892	35,000 00
August 18, 1894	25,000 00
June 3, 1896	20,500 00
March 3, 1899	30,000 00
June 13, 1902	28,500 00
March 3, 1905	30,000 00
Total	$366,000 00
Received from sale of material	19 59
Total	$366,019 59

CONTRACT IN FORCE.

Contractor: R. G. Packard Company.

Amount and character of work: About $25,000 worth of work removing ledge rock, including contingencies and supervision.

Rate per cubic yard, $6.70.

Date of approval: October 19, 1905.

To commence: Within fifteen days after receipt of notice of approval.

To complete: Within twelve working months after date of commencement.

COMMERCIAL STATISTICS.

The commerce arriving at and leaving Pawtucket river, Rhode Island, during the calendar year ending December 31, 1905, is estimated as follows (based upon

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reports received from the Newell Coal and Lumber Company, of Pawtucket, R. I.):

Commerce Arriving at and Leaving Pawtucket River, Calendar Year, 1905.

	Tons.
Lumber and products	5,455
Coal, minerals, etc	254,628
General merchandise	18,436
Sundries	8,118
Total	286,637
Increase over 1904	56,802

The vessels entering and leaving this waterway are as follows (each entrance and departure together being counted as one):

Character or class of service.	Number.	Average draft feet.	Average tonnage.
Steam:—Freight, mainly	300	10	500
Passenger, mainly	350	8	100
Tugs	700	5	50
Sail:—Freight	300	10	300
Pleasure boats, large	30	7	100
Pleasure boats, small	400	3	4
Barges	150	10	500

IMPROVEMENT OF PROVIDENCE RIVER AND HARBOR, NARRAGANSETT BAY, AND GREEN JACKET SHOAL.

Operations during the past fiscal year.—The work of dredging under the continuing contract with the Columbia Dredging Company of New York, N. Y., was commenced July 18, 1905, and was continued throughout the remainder of the fiscal year, the contractor having elected to continue work after the exhaustion of the funds available for payment. The winter having been very mild, the work was continuous.

Up to the close of the fiscal year 1,946,074 cubic yards of mud were removed, at a cost of 8.45 cents per cubic yard, practically completing that portion of the anchorage lying west of the old channel and commencing the eastern portion. Two dredges are employed upon the work.

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Operations contemplated for the fiscal year ending June 30, 1907.—It is proposed to complete the dredging of the soft material and prepare for a contract for the removal of the hard material.

Amounts Appropriated.

For Providence River and Narragansett Bay.

Previous Projects:	
August 30, 1852	$5,000 00
August 30, 1852, survey	1,500 00
May 2, 1867	25,000 00
July 11, 1870	5,000 00
July 15, 1870	2,500 00
June 10, 1872	10,000 00
March 3, 1873	10,000 00
March 18, 1876	5,000 00
June 18, 1878	50,000 00
July 14, 1880	60,000 00
March 3, 1881	60,000 00
August 2, 1882	60,000 00
July 5, 1884	125,000 00
August 5, 1886	85,000 00
August 11, 1888	40,000 00
September 19, 1890	50,000 00
July 13, 1892	50,000 00
August 18, 1894	17,500 00
June 3, 1896	25,000 00
June 4, 1897	125,000 00
July 1, 1898	125,000 00
March 3, 1899	10,000 00
June 6, 1900	54,489 00
March 3, 1901	59,000 00
June 28, 1902	84,560 00
	$1,174,549 00
Received from sale of material	143 39
Received by reimbursement from Col. W. R. Livermore	8 48
	$1,174,700 87

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EXISTING PROJECT:

June 13, 1902	100,000 00
March 3, 1905	100,000 00
June 30, 1906	305,000 00
	$505,000 00
Total	$1,679,700 87

FOR GREEN JACKET SHOAL.

August 5, 1886	$26,250 00
August 11, 1888	28,000 00
September 19, 1890	25,000 00
July 13, 1892	10,000 00
August 18, 1894	7,500 00
June 3, 1896	7,500 00
Total	$104,250 00

CONTRACT IN FORCE.*

Contractor: Columbia Dredging Co.
Amount: $400,000.
Character: dredging.
Price per cubic yard: 8.45 cents.
Date of approval: June 24, 1905.
To commence within fifteen days after notification of approval.
Date of expiration: Not later than November 30, 1907.

COMMERCIAL STATISTICS.

The commerce arriving at and leaving Providence river, Rhode Island, by water during the calendar year ending December 31, 1905, is estimated as follows (based upon reports received from the harbor master of Providence, R. I., Mr. J. T. P. Bucklin):

Commerce Arriving at and Leaving Providence River, Calendar Year, 1905.

	Tons.
General merchandise	696,101
Lumber and products	35,647

* This is a continuing contract.

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Building materials (stone, cement, lime, plaster, brick, sand, gravel, clay and asphalt)	41,206
Boneblack	1,842
Licorice	1,850
Ground shell and oyster shells	18,319
Oysters	28,044
Chemicals	1,820
Logwood	650
Potatoes	30
Oil	35,684
General merchandise	696,101
Total	3,244,248
Increase over 1904	585,075

The vessels entering and leaving this waterway are as follows (each entrance and departure together being counted as one):

Character or class of service.	Number.	Average draft feet.	Average Tonnage.
Steam:—Freight and passenger	462	12	600
Freight mainly	775	18	1,450
Passenger mainly	1,498	7	519
Fishing	1,500	3	30
Tugs	2,067	13	100
Pleasure boats	1,600	5	30
Sail:—Freight	470	18	1,500
Pleasure boats, large	1,600	7	40
Pleasure boats, small	1,600	3	7
Barges	1,663	16	1,200

IMPOVEMENT OF NEWPORT HARBOR.

Operations during the past fiscal year.—Complaint having been made of shoals obstructing navigation in various parts of the dredged area in the harbor, an allotment of $10.000 was made from the appropriation for "Emergencies in river and harbor works" to redredge the most serious of those. Under authority of the Chief of Engineers, proposals were invited for the hire of a dredge by the hour to do this work. The contract was awarded to Charles M. Cole, Fall River, Mass., for dredge, tug, and two scows, at the rate of $17 per hour. The work of

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dredging was carried on west and south of the wharf of the New England Navigation Company, off the south end of Goat Island and northwest of Commercial wharf. The dredge worked 557.62 hours between March 29, and May 26, 1906, removing 34,608 cubic yards, at a cost of 27.4 cents per cubic yard, which was 4.6 cents less than the last contract price by the yard.

A survey has been made of the southern part of the harbor, with a view to the extension of the anchorage area.

All approved projects for this harbor have been completed.

Operations contemplated for the fiscal year ending June 30, 1907.—Further work awaits the action of Congress.

Amounts Appropriated.

March 3, 1873	$8,500 00
June 23, 1874	10,000 00
March 3, 1875	10,000 00
March 3, 1881	25,000 00
August 2, 1882	20,000 00
July 5, 1884	20,000 00
August 5, 1886	15,000 00
August 11, 1888	12,000 00
September 19, 1890	12,500 00
July 13, 1892	25,000 00
August 18, 1894	7,500 00
June 3, 1896	15,000 00
March 3, 1899	15,000 00
August 29, 1901 (allotment)	50 00
June 6, 1902, (allotment)	750 00
June 13, 1902	30,000 00
March 3, 1905, (allotment)	10,000 00
Received from sale of material	8 52
Total	$245,308 52
Amount returned to the Treasury of the United States	420 46
Total	$244,888 06

EMERGENCY CONTRACT IN FORCE.

Contractor: Charles M. Cole.

Amount and character of work: Furnishing dredging plant and outfit for about $10,000 worth of work.

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Rate: $17 per hour.
Date of approval: No approval necessary.
To commence: March 31, 1906.
To complete: In ninety days after commencement.

COMMERCIAL STATISTICS.

The commerce arriving at and leaving Newport Harbor, Rhode Island, during the calendar year ending December 31, 1905, is estimated as follows (based on report received from Mr. Clarence A. Hammett, collector of customs, Newport, R. I.):

Commerce Arriving at and Leaving Newport Harbor, Calendar year, 1905.

	Tons.
Tobacco	65
Grains and forage	3,120
Vegetables and truck	1,755
Fish, oysters, etc	162,200
Lumber and products	175,000
Coal, minerals, etc	1,250,000
Fertilizers	2,000
General merchandise	105,176
Sundries	69,000
Total	*1,770,816
Increase over 1904	209,111

The vessels entering and leaving this waterway are as follows (each entrance and departure together being counted as one):

Character or class of service.	Number	Average draft feet.	Average Tonnage.
Steam:—Freight and passenger	1,500	12	2,050
Freight mainly	430	10	1,200
Passenger mainly	4,200	9	600
Fishing	210	9	200
Tugs	800	9	97
Pleasure boats	1,500	7	125
Sail:—Freight	1,500	10	160
Fishing boats	5,400	6	30

*Includes about 999,000 tons of coal and about 100,000 tons of lumber carried to other ports, but using Newport harbor in stress of weather.

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Character or class of service.	Number.	Average draft feet.	Average Tonnage.
Pleasure boats, large	1,900	6	15
Pleasure boats, small	3,500	3	4
Barges	600	12	650

HARBOR OF REFUGE AT POINT JUDITH.

Operations during the past fiscal year.—Under date of July 1, 1905, proposals were received for the extension of the shore arm of the breakwater both seaward, and from the low-water line to the bluff on shore, together with a revetment along the face of the bluff. The revetment and shore extension was to be deferred until the Government secured title to the land by condemnation. The continuing contract to the amount of $200,000 less contingent expenses and land damages, was awarded to John F. Donovan, of New York, at the rate of $1.80 per ton of stone in place in both the seaward and shoreward extension. The work of placing the stone in the seaward extension commenced November 1, 1905, and owing to the mildness of the winter, was continued and in progress June 30, 1906, when 92 per cent. of all stone required under the contract was placed. Under this contract 87,920 tons of stone were placed in the seaward extension, increasing its length 709 feet of full cross section and an additional length of 118 feet of partial section, making a total length of 1,360 feet from the low-water line on shore.

Proceedings for the condemnation of the land were instituted, and on May 26, 1906, the decree of condemnation was entered, but the damages have not yet been assessed.

During October and November, 1905, 2,005 tons of stone were placed in the main breakwater to repair slight damages caused by storms since the completion of the work in 1898. This stone was placed under contract with E. S. Belden & Sons, of Hartford, Conn., at the rate of $3.13 per ton.

Three small lights were maintained on the main breakwater by the Engineer Department.

During the year the following vessels made use of the harbor of refuge: Two hundred and two schooners, 139 barges, 118 tugs, 51 sloops, 330 steamers, 4 fishing steamers, 3 yachts, 3 lighters, 2 knockabouts, and 1 dredge. Some of the barges and tugs were a part of the plant employed by the contractor for the shore extension of the breakwater.

Operations Contemplated for the fiscal year ending June 30, 1907.—The shore end of the breakwater will be constructed.

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Amounts Appropriated.

September 19, 1890	$75,000 00
July 13, 1892	75,000 00
March 3, 1893	100,000 00
August 18, 1894	100,000 00
March 8, 1895	300,000 00
June 11, 1896	300,000 00
June 4, 1897	300,000 00
June 13, 1902	100,000 00
March 3, 1905	100,000 00
June 30, 1906	100,000 00
Total	$1,550,000 00
Received from sale of material, previously reported	38 61
Received from sale of material, 1906	5 00
Total	$1,550,043 61

CONTRACTS IN FORCE.

Contractor: John F. Donovan. (continuing contract.)

Character of work: Breakwater construction and revetment.

Amount of work: About $200,000 worth of work, including contingencies, etc.

Rate per ton of 2,000 pounds stone in place: $1.80.

Date of Approval: September 25, 1905.

To commence, in 20 days after receipt of notice of approval.

To complete: In 14 working months after date of beginning, exclusive of December, January, February and March.

Contractor: E. S. Belden & Sons. (Emergency contract.)

Character of work: Breakwater repair.

Amount of work: About 2,000 tons of stone in place and rearrangement of some top stones already on breakwater.

Rate per ton of 2,000 pounds stone in place, $3.13.

Date of approval: No approval required.

To commence: In 20 days after October 14, 1905.

To complete: On or before Jan. 1, 1906.

COMMERCIAL STATISTICS.

The tonnage of vessels passing Point Judith, R. I., during the calendar year December 31, 1905, is estimated as follows (based upon reports received from Mr. Amos P. Tefft, keeper of Point Judith Life-saving Station, Rhode Island):

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Tonnage of Vessels Passing Point Judith, Calendar Year, 1905.

	Gross Tons.
Steamers (freight, fish, and passenger)	9,050,000
Yachts (steam and sail)	1,500,000
Schooners (2 to 6 masts)	32,100,000
Ships, barks, brigs, barkentines, etc.	200,000
Sloops	50,000
Barges	7,700,000
	50,600,000
Increase over 1904	50,000

IMPROVEMENT OF ENTRANCE TO POINT JUDITH POINT.

Operations during the past fiscal year.—The project for the expenditure of the United States funds made available for this work by the river and harbor act of March 3, 1905, provided for the extension of the jetty on the western side of the entrance seaward and a revetment along the shore of the dredged entrance channel to check the tendency of the currents to cut behind the shore end of the jetty.

Proposals for this work were received August 26, 1905, after public advertisement, and the contract awarded E. S. Belden & Sons, of Hartford, Conn., at the rate of $1.93 per ton of stone in place.

Work under this contract was commenced November 28, 1905, and completed January 10, 1906. The jetty was extended seaward 185 feet and the revetment along the channel bank 152 feet, 4,632 tons of stone being placed under the contract.

Operations contemplated for the fiscal year ending June 30, 1907.—No further work is contemplated.

Amounts Appropriated.

July 13, 1892	$7,500 00
August 18, 1894	2,500 00
March 3, 1905	2,000 00
	$12,000 00

CONTRACT IN FORCE.

Contractor: E. S. Belden & Sons.

Amount and character of work: Jetty extension to the amount of about $10,000, less contingencies and supervision.

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Rate: $1.93 per ton of 2,000 pounds of stone in place.

Date of approval: October 5, 1905.

To commence: On or before November 1, 1905.

To complete: In three working months after beginning, exclusive of December, January, February, and March.

COMMERCIAL STATISTICS.

For commercial statistics see report for harbor of refuge at Point Judith, R. I.

HARBOR OF REFUGE AT BLOCK ISLAND.

Operations during the past fiscal year.—Lights were maintained at the entrance to the harbor during the year by the Engineer Department.

The work of repairing the main breakwater, in progress at the beginning of the fiscal year, under the contract with E. S. Belden & Sons, at the rate of $2.13 per ton of stone in place, was continued until October 15, 1905, when the contract was completed. During the fiscal year 8,429 tons of stone were placed, a total under the contract of 10,000 tons, completing all work proposed on the breakwater.

The work of dredging under the contract with the J. S. Packard Dredging Company, of Providence, R. I., was commenced September 2, 1905, and continued until June 4, 1906, excepting the period from December 15, 1905, to March 27, 1906, when operations were suspended on account of the weather. Under the contract 89,384 cubic yards of clay, sand, and small bowlders and 266.831 cubic yards of bowlders exceeding 1 cubic yard were removed and the contract completed. The dredging work covered 91 per cent. of the area contemplated in the original estimate for the work, but this area was somewhat increased by the modification of the project so as to include the removal of the short arm of the north harbor wall lying between the entrance to the harbor and the main breakwater so that but 81 per cent of the total contemplated dredging was completed.

The amount required to complete the project is estimated at $17,000, which is the amount expended for maintenance.

Amounts Appropriated.

July 11, 1870	$30,000 00
March 3, 1871	75,000 00
June 10, 1872	50,000 00
March 3, 1873	50,000 00

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June 23, 1874	20,000 00
March 8, 1875	20,000 00
August 14, 1876	40,000 00
July 14, 1880	6,000 00
August 2, 1882	19,000 00
July 4, 1884	15,000 00
August 5, 1886	20,000 00
August 11, 1888	15,000 00
Septmeber 19, 1890	15,000 00
July 13, 1892	24,000 00
August 18, 1894	2,500 00
June 3, 1896	5,000 00
March 3, 1899	10,000 00
April 15, 1902 (allotment)	4,500 00
June 13, 1902	30,000 00
March 3, 1905	50,000 00
Total	$501,000 00
Amount returned to United States Treasury	2,108 83
Total	$498,891 17

CONTRACTS IN FORCE.

Contractor: J. S. Packard Dredging Co.
Amount of work: $30,000.
Character of work: Dredging.
Rate per cubic yard: 24 cents.
Date of approval: July 3, 1905.
To commence: In 20 days after notification of approval.
Date of expiration: In 6 months after beginning.
Contractor: E. S. Belden & Sons.
Amount of work: $20,000.
Character of work: Repairing breakwater.
Rate per ton of 2,000 pounds stone: $2.13.
Date of approval: July 3, 1905.
To commence: In 15 days after notification of approval.
Date of expiration: In 4 working months after beginning.

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COMMERCIAL STATISTICS.

The commerce arriving at and leaving Block Island, R. I., by water during the calendar year ending December 31, 1905, is estimated as follows (based upon reports received from Mr. C. C. Ball, Block Island, R. I.):

Commerce Arriving at and Leaving Block Island, Calendar Year, 1905.

	Tons.
Cotton and products	210
Tobacco	70
Rice	20
Grains and forage	10,000
Vegetables and truck	4,000
Live stock and products	6,500
Fish, oysters, etc	55,000
Naval stores	35
Lumber and products	10,500
Coal, minerals, etc	25,000
Fertilizers	3,000
Machinery	600
General merchandise	35,000
Sundries	35,000
Total	184,935
Increase over 1904	22,020

The vessels entering and leaving this waterway are as follows (each entrance and departure together being counted as one):

Character or class of service.	Number.	Average draft feet.	Average Number.
Steam:—Freight and passenger	4,000	9½	600
Freight mainly	1,000	8½	300
Passenger mainly	1,000	9	400
Fishing	5,000	10	200
Tugs	2,000	10½	200
Pleasure boats	6,000	9½	200
Sail:—Freight	4 500	10½	225
Fishing boats	20,500	9½	100
Oyster boats	300	7½	35
Pleasure boats, large	5.000	9	150
Pleasure boats, small	16,000	7½	15
Barges	300	12	450

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IMPROVEMENT OF GREAT SALT POND, BLOCK ISLAND.

Operations during the past fiscal year.—Proposals for both dredging and jetty construction were received July 8, 1905, after the usual public advertisement.

The contract for the extension of the south jetty was awarded to E. S. Belden & Sons, of Hartford, Conn., at the rate of $1.23 per ton of stone in place.

The contract for dredging to 25 feet depth in the entrance channel was awarded to Charles M. Cole, of Fall River, Mass., at the rate of 27 cents per cubic yard.

Work under the contract for the jetty extension was commenced September 7 and completed November 19, 1905. Under the contract 12,013 tons of stone were placed, extending the jetty 142 feet in water 25 feet deep.

Work under the contract for dredging was commenced August 10, and suspended September 11, 1905, owing to a serious accident to the contractor's plant. The repairs to the plant having occupied so long a time and the exposure of the place to northerly and northwesterly winds in the fall and winter being so great, under authority of the Chief of Engineers, the work was suspended until the following season. Work was resumed June 1, 1906, and was in progress at the close of the fiscal year; 33,977 cubic yards of sand, clay, and small bowlders were removed, under the contract, and 1,026 cubic yards bowlders exceeding 1 cubic yard each in size.

Operations Contemplated for the Fiscal Year ending June 30, 1907.—Dredge 25-foot channel as far as funds will permit.

Amounts Appropriated.

June 3, 1896	$40,000 00
March 3, 1899	50,000 00
June 13, 1902	50,000 00
March 3, 1905	30,000 00
Total	$170,000 00

CONTRACTS IN FORCE.

Contractor: E. S. Belden & Sons.
Character and amount of work: Jetty extension, about 12,000 tons of stone.
Rate per unit: $1.23 per ton.
Date of approval: Aug. 15, 1905.
To commence: Within 20 days after receipt of notice of approval.
Date of expiration: Within 3 working months after date of beginning.
Contractor: Charles M. Cole.

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Character and amount of work: Dredging, about 120,000 cubic yards.
Rate per unit: 27 cents per cubic yard.
Date of approval: August 30.
To commence: Within 15 days after receipt of notice of approval.
Date of expiration: Within 4 working months after date of beginning.

COMMERCIAL STATISTICS.

The commerce arriving and leaving the Great Salt Pond, Block Island, R. I., by water during the calendar year ending December 31, 1905, is estimated as follows (based upon reports received from Mr. Christopher E. Champlin, Block Island, R. I.):

Commerce Arriving at and Leaving Great Salt Pond, Block Island, R. I., Calendar Year, 1905.

	Tons.
Grains and forage	6,000
Vegetables and truck	7,000
Live stock and products	5,000
Fish, oysters, etc	10,000
Lumber and products	5,000
Fertilizers	500
Machinery	5,000
General merchandise	25,000
Sundries	20,000
Total	83,500
Increase over 1904	38,500

The vessels entering and leaving this waterway are as follows (each entrance and departure together being counted as one):

Character or class of service.	Number.	Average draft feet.	Average number.
Steam:—Freight and passenger	3,000	10	500
Freight mainly	2,000	14	200
Passenger, mainly	1,000	10	200
Fishing	5,000	12	400
Tugs	700	9	75
Pleasure boats	10,000	11	200
Sail:—Freight	1,000	11	200
Fishing boats	1,500	10	200

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Character or class of service.	Number.	Average draft feet.	Average number
Sail:—Pleasure boats, large	6,000	6	10
Pleasure boats, small	3,000	3	5
Barges	1,000	11	800

REMOVING SUNKEN VESSELS OR CRAFT OBSTRUCTING OR ENDANGERING NAVIGATION.

Barge Moonbeam.—Sunk off Point Judith, Rhode Island, May 3, 1905; wreck reported May 4. A tug was immediately sent to remove wreckage reported to be floating in the vicinity. One thousand and fifty dollars was allotted for the removal of this wreck. The owners desiring time for the salvage of the cargo of coal, active operations beyond the removal above referred to were deferred until in July, when a careful sweeping over a large area in the vicinity failed to locate the wreck, and the search was abandoned July 15. The cost of all work amounted to $492.17, and the balance of the allotment was turned into the Treasury.

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APPENDIX B.

STATEMENT OF PROGRESS OF RIVER AND HARBOR IMPROVEMENTS IN THE STATE OF RHODE ISLAND IN THE NEWPORT ENGINEER DISTRICT, IN CHARGE OF LIEUTENANT-COLONEL J. H. WILLARD, CORPS OF ENGINEERS, U. S. A., FROM JUNE 30, 1906, TO DECEMBER 31, 1906.

PROVIDENCE HARBOR.—The work of dredging Providence Harbor to a depth of 25 feet at mean low water, from "Long Bed" and "Sassafras Point" on the south from "Fox Point" and "Green Jacket Shoal" on the north, with the full width between the harbor lines, under the continuing contract with the Columbia Dredging Co., of New York was continued. 1,312,190 cubic yards of mud were removed, making a total excavation under the present project of 4,007,354 cubic yards.

HARBOR OF REFUGE AT POINT JUDITH.—The work of extension of the shore arm breakwater, in progress June 30th, was continued until July 23, 1906, when it was discontinued, pending the acquisition of title to the land above high water necessary for the completion and protection of the shore end of the breakwater. The contract with John F. Donovan of New York for this work was completed under supplemental articles of agreement dated August 31, 1906, by which all stone necessary for the completion of the shore end was stored below the high water line at a reduced price. Under this contract, 94,544.89 tons of stone were placed in the breakwater, extending it seaward 747 feet and 86 feet shoreward between the high and low water lines on shore. Total top lengths of breakwater is now 1353 feet with a slope on the seaward end of 110 feet in length.

GREAT SALT POND, BLOCK ISLAND, R. I.—The work of dredging the entrance channel to the Great Salt Pond to a depth of 25 feet at mean low water, in progress June 30, 1906, under the contract with Charles M. Cole, of Fall River, Mass., was completed November 5, 1906. The total excavation under this contract was 99,383 cubic yards. Three cuts each 30 feet wide were completed from the 25 foot contour in the pond to the same depth outside. Some delay was occasioned to the completion of this work by the complete destruction of the contractor's dredge by fire.

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No works of improvement were in progress between June 30, and December 31, 1906, at the following localities:

Sakonnet River.
Pawtucket River.
Newport Harbor.
Entrance to Point Judith Pond.
Harbor of Refuge at Block Island.

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PUBLIC DOCUMENT.] APPENDIX. No. 28.

ANNUAL REPORT

OF THE

COMMISSIONERS OF SHELL FISHERIES,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE:
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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OFFICERS AND EMPLOYEES

OF THE

COMMISSIONERS OF SHELL FISHERIES.

COMMISSIONERS OF SHALL FISHERIES.

PHILIP H. WILBOUR.....P. O. Address, Little Compton, R. I.
JAMES M. WRIGHT..... " " South Scituate, R. I.
JOHN H. NORTHUP..... " " Apponaug, R. I.
GEORGE W. HOXIE..... " " Shannock, R. I.
HERBERT M. GARDINER..... " " Barrington, R. I.

CLERK.

JAMES C. COLLINS.....P. O. Address, Providence, R. I.

ENGINEER.

O. P. SARLE.....P. O. Address, Providence, R. I.

DEPUTIES.

CHARLES I. NORTHUP.....P. O. Address, Apponaug, R. I.
FRANKLIN D. PAYNE..... " " Drownville, R. I.
OLIVER G. HICKS..... " " Bristol Ferry, R. I.
LEMAN WARDSWORTH..... " " Wickford, R. I.
ALEXANDER DENNIE..... " " Tiverton, R. I.
PHILIP H. MACOMBER..... " " Tiverton, R. I.

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REPORT.

To the Honorable General Assembly of the State of Rhode Island and Providence Plantations:

GENTLEMEN:—In accordance with the law requiring the Commissioners of Shell Fisheries to make their annual report to the General Assembly at its January session of the doings and condition of this department of the public service, including a detailed statement of all moneys received and expended on account thereof, we submit the following.

There has been no change in the organization of this Commission during the year just passed. We have the same President of this Commission, the same clerk, and the same engineer.

The report last submitted to your Honorable Body shows quite an increase in that report (1905) of any previous year. We are now happy to inform your Honorable Body that 1906 will far exceed, in the extension of this industry, any previous period since this office was established.

Never has this industry of the State been as successful as at the present time, for both 1904 and 1905 have been years of increase of land leased; and for 1906, there has been more land leased than in any previous year.

We can truly say, as was said in the report of 1905, that the conditions of leasing and holding oyster land at the present time are more favorable in every respect than in any previous time in the history of the State. Although the acreage taken out will far exceed any previous year, we can not say the condition of the oyster, as to size, has been equal to any time immediately previous to the present.

There has been a good demand in the market for oysters, more

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demand, in fact, than during any previous year. The prices have been high, but most of the oysters have been quite well developed but not as large as formerly.

As reported formerly, the prospect of a scarcity of sizable oysters for the next year's market is owing to the failure of a set not only in our waters, but in Connecticut waters, where a large supply of seed oysters is obtained.

During 1902 and 1903 there was a complete failure of sets, which will partially cause a failure of oysters from three to four years old in the market for 1906 and 1907.

While in most of our waters there has been a very good set during the present season (1906), this has not been uniform throughout the State. In many places the set has been very good, in some places there has been none at all. In many of the waters adjoining us the set, we understand, has been quite a disappointment, in parts nearly a failure.

Notwithstanding there has been a partial failure for the past year of the set, there has been a good demand for oyster ground for the propagation and development of oyster seed. Considerable ground which has heretofore been considered too soft for holding oysters the surface of the ground has been sufficiently firm to hold shells, and some of this ground has been leased for this purpose.

There has been a good demand for oyster ground for the past season, more than in any one year before, as the tables will show. Although the demand has been good for the oysters, many of the dealers have claimed quite a loss in being obliged to dispose of them of the age of two years instead of those of the age of four years. They not only lose on the growth, but also on the number of gallons compared to the number of bushels opened, the number of bushels opened not yielding as many oysters as formerly; notwithstanding this, the demand has been beyond the capacity of the dealer to furnish the same.

During the year 1904 there were taken out, of new land which had never been used for the purpose of raising and cultivating oysters,

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four hundred and forty-three (443) acres, whilst during the same year one hundred and forty-five and four tenths (145.4) acres were cancelled.

During the year 1905 two thousand six hundred thirteen and seven tenths (2,613.7) acres have been granted according to law, and the number of acres cancelled were sixty-five and three tenths (65.3), leaving a larger increase of acres taken out than any previous year.

During the year 1906 there have been applied for, and taken, one thousand two hundred forty-six and eight-tenths (1,246.8) acres paying an annual rental of ten dollars ($10.00) per acre, making an increase of twelve thousand four hundred and sixty-eight dollars ($12,468.00), from land covered by less than twelve feet of water; and three thousand seventy-two and five-tenths (3,072.5) acres paying an annual rental of five dollars ($5.00) per acre, making an increase of fifteen thousand three hundred sixty-two dollars and fifty cents ($15,362.50), from land covered by over twelve feet of water. This makes the total increase, for this year, four thousand three hundred nineteen and three-tenths (4,319.3) acres of land, and twenty-seven thousand eight hundred thirty dollars and fifty cents ($27,830.50) in rentals. Quite a large tract of this land lies in Wickford Harbor, a locality which has been previously exempt by law.

There are now, January 1, 1907, standing upon the books of the Commission, and upon which rents are now due, five thousand fifty-four and nine-tenths (5,054.9) acres paying an annual rental of ten dollars ($10.00) per acre, making fifty thousand five hundred and forty dollars ($50,540.00) for land at that price; seven thousand eight hundred thirty-seven and seven tenths (7,837.7) acres paying an annual rental of five dollars ($5.00) per acre, making thirty-nine thousand, one hundred eighty-eight dollars and fifty cents ($39,188.50); and seventy-six and six hundredths (76.06) acres (leases for which expire in 1907, after which time the rent will be five dollars ($5.00) per acre) paying an annual rental of one dollar ($1.00) per acre. This makes the total amount of land leased at this time twelve thousand nine hundred sixty-eight and sixty-six hundredths (12,968.66) acres, and

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the total amount of rents eighty-nine thousand eight hundred thirteen dollars and fifty-six cents ($89,813.56).

There have been cancelled during the year 1906 sixteen and three-tenths (16.3) acres paying an annual rental of ten dollars ($10.00) per acre, and fifty-four and two-tenths (54.2) acres paying an annual rental of five dollars ($5.00) per acre.

The total amount collected during the year 1906, was fifty-nine thousand eighty dollars and ninety eight cents ($59,080.98).

In our last year's report we had occasion to give something of an account of the starfish. This has always been the greatest enemy to the cultivation of the oyster, although there are not at this time very many of this fish in the upper part of the bay. We have had quite extensive report of large numbers further down the bay, and many of the planters have had to be at quite an expense to keep them from destroying their product.

We can say of this fish, as we said last year, one would suppose from the large quantity of starfish caught by the oyster planters, these pests would be exterminated, but from all reports, this is far from being the case. Although not by any means exterminated, they are not as numerous as formerly.

This year we are happy to hear of no complaints of any set of mussels, which have been in some previous years quite destructive to the oyster.

SCALLOPS.

Although there have been no licenses taken out to take scallops the past year, and there has been very few in our waters, the deputies have had some complaint made by citizens at the mouth of Greenwich Bay, for illegally taking them, which they have attended to. They have not heard of any further complaint from that quarter.

One of the deputies, having made extensive investigation of Greenwich Bay, reports finding quite a set in these waters. We hope from this we may be able to report a moderate catch during the coming season, should there be no unforeseen accident happen to them.

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Clams and Quahaugs.

In our last year's report we gave quite an account of the condition of the soft-shell clam. Although we can not at this time give any flattering account of this clam, we can say for the last year or two there has been rather a better supply than formerly. It appears to us that our extensive shores ought to supply a larger quantity of clams than they now do.

We are not informed of any change in regard to the quahaug, the price, the same as last year, remaining high. We then reported that one reason of the high price of this shell fish is that large quantities of the small quahaugs, commonly called "little necks," are caught and used before this fish is fully matured. A law was passed by the legislature, April 20, 1906, as follows:

CHAPTER 1369.

An Act for Better Protection of Quahaugs.

It is enacted by the General Assembly as follows:

Section 1. Every person who shall take or have in his or her possession any quahaugs less than one and one-half inches in diameter, taking the largest diameter, taken from any waters of this state, shall be fined five dollars for each and every bushel; but any person taking any quahaugs less than one and one-half inches in diameter, taking the largest diameter, from any of the waters of this state, and immediately returning the same, unmutilated, to the waters from which they were taken, shall not be subject to such fine.

Sec. 2. This act shall take effect upon and after its passage.

No suit can be brought unless the party has one bushel in his possession at any one time; as these quahaugs are generally mixed with others and larger ones, it has been impossible to ascertain the quantity taken. If a law could be passed making it a penalty to keep these shell fish, we think it would prevent the catching and disposal of them which if left to develop would be of great value to the State.

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Financial Statement of the Oyster Industry of the State from January 1, A. D. 1906 to January 1, A. D. 1907.

Receipts for rents of oyster ground	$59,080 98

DISBURSEMENTS.

Paid for salaries of commissioners	$2,500 00
Paid for salary of clerk	1,500 00
Paid engineer for work done in 1906	1,417 25
Engineer (work done in 1906 and unpaid)	6,498 96
Paid deputy commissioners for enforcing shell-fish laws	1,300 00
Paid for examining oyster beds	54 96
	$13,271 17
Paid engineer for work done in 1905	$1,339 90

Receipts for Rents of Oyster Ground.

The following table shows the grosss receipts received by the State each year for rents of oyster grounds since and during the year 1864, at which time this office was established.

1864	$61 00
1865	737 72
1866	661 27
1867	1,568 50
1868	1,814 40
1869	1,949 15
1870	1,527 65
1871	2,186 63
1872	2,772 95
1873	4,483 88
1874	4,997 00
1875	5,276 00
1876	5,300 00
1877	6,045 25
1878	6,582 90
1879	7,860 00
1880	8,190 00

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First specimens of set (appearing as small spots) of July, 1905, taken up near Sabin's Point, August 1, 1907.

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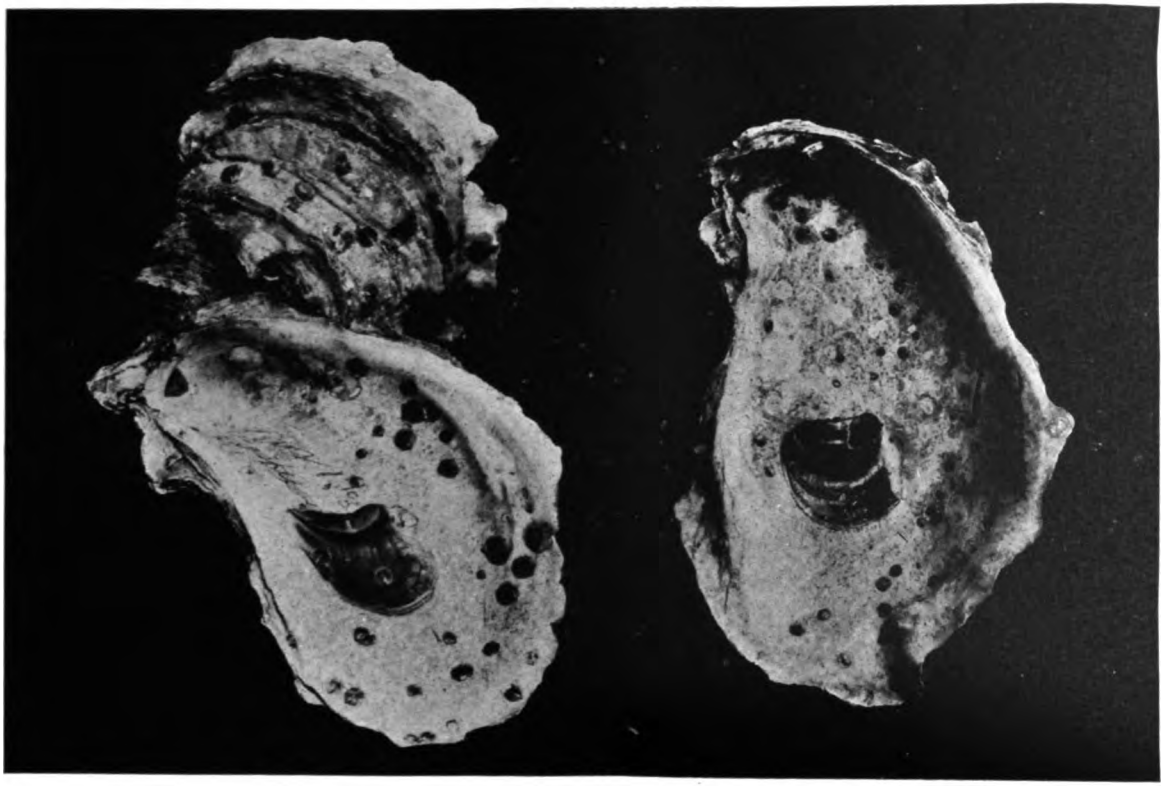

First specimens of set (appearing as small spots) of July, 1905, taken up near Gaspee Point, August 10, 1905.

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Specimens of set on Quahaug shell, taken near Rocky Point, September 1, 1905.

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Growth of set from July, 1905, to March, 1906.

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1881	9,333 00
1882	9,850 00
1883	10,312 00
1884	10,757 00
1885	11,920 00
1886	10,433 00
1887	8,648 00
1888	7,614 00
1889	9,997 00
1890	5,616 20
1891	12,595 70
1892	6,731 55
1893	6,491 25
1894	6,675 55
1895	6,509 00
1896	6,569 57
1897	7,016 74
1898	7,690 00
1899	13,558 46
1900	20,973 08
1901	25,767 38
1902	36,843 99
1903	42,160 02
1904	45,252 58
1905	47,082 26
1906	59,080 98
1907 (estimated)	89,813 56

Respectfully submitted,

PHILIP H. WILBOUR,
JAMES M. WRIGHT,
JOHN H. NORTHUP,
GEORGE W. HOXIE,
HERBERT M. GARDNER,

Commissioner of Shell Fisheries.

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APPENDIX A.

ALPHABETICAL LIST

Of leaseholders of oyster ground within the jurisdiction of the State, with the number of acres leased to each, as shown by the books of the Commissioners of Shell Fisheries on January 1, 1907, and the annual rate per acre paid by each person.

NAME.	TOWN.	Acres.	Rent. per acre.	Amount.
Aldrich, Charles H.	East Providence.	9.0	$10 00	$90 00
Aldrich, Charles H.	East Providence.	1.1	5 00	5 50
Barns, Martin S.	Westerly	3.0	10 00	30 00
Barney, Francis R.	Warren	9.5	10 00	95 00
Bayne, Washington C.	Warwick	27.1	10 00	271 00
Balkcom, Sidney A.	East Providence.	4.9	10.00	49 00
Balkcom, Sidney A.	East Providence.	1.6	5 00	8 00
Baker, Joseph W.	North Kingstown	12.3	10 00	123 00
Baker, Joseph W.	North Kingstown.	6.1	5 00	30 50
Baker, Lewis R.	Providence	3.0	10 00	30 00
Bell, George S., Jr.	Warwick	15 0	10 00	150 00
Bliss, George N.	East Providence.	85.5	10 00	855 00
Bliss, George N.	East Providence.	5.0	5 00	25 00
Blount, Mary E	Barrington	3.3	10 00	33 00
Bolton, Joseph.	Warren	1.8	10 00	18 00
Bourne, C. E. & Sons	Providence	80.9	10 00	809 00
Bourne, C. E. & Sons	Providence	52.6	5 00	263 00
Bowden, Charles H.	Barrington	.5	10 00	5 00
Bowden, J. F. & A. B.	Barrington	4.3	10 00	43 00
Brown, Joseph E. (estate of)	Warren	2.0	10 00	20 00
Brown, Joseph E. (estate of)	Warren	3.6	5 00	18 00
Brown, Edward V.	Warren	.7	10 00	7 00
Brown, Edward V.	Warren	3.0	5 00	15 00
Brownell, John M.	Portsmouth	6.4	10 00	64 00
Brownell, John M.	Portsmouth	8.6	5 00	43 00
Butler, Walter H.	East Providence.	2.0	10 00	20 00
Brayton, George E.	East Greenwich	1.7	10 00	17 00
Brayton, George E.	East Greenwich	7.4	5 00	37 00
Buckingham, Erastus M.	Warren	94.1	10 00	941 00
Buckingham, Erastus M.	Warren	86.5	5 00	432 50

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ALPHABETICAL LIST.—Continued.

NAME.	Town.	Acres.	Rent per acre.	Amount.
Church, George H	Providence	470.1	10 00	4,701 00
Church, George H	Providence	465.7	5 00	2,328 50
Church, George H	Providence	35.6	1 00	35 60
Chapman, Harris P	Westerly	3.0	10 00	30 00
Chaffee, Roy E	East Providence	1.7	10 00	17 00
Chaffee, Roy E	East Providence	.1	5 00	50
Cole, George R. & Co	Warren	1.2	10 00	12 00
Covo, George H	Warren	11.5	10 00	115 00
Covo, George H	Warren	7.2	5 00	36 00
Cornell, Sidney	Warwick	10.6	10 00	106 00
Cottrell, George F	Tiverton	136.8	10 00	1,368 00
Cottrell, George F	Tiverton	123.0	5 00	615 00
Coggeshall, Josiah	Warren	4.9	10 00	49 00
Coggeshall, Josiah	Warren	5.9	5 00	29 50
Connolly, Thomas H	Warren	155.0	10 00	1,550 00
Connolly, Thomas H	Warren	178.0	5 00	890 00
Crowell, Jesse E	Warren	5.9	5 00	29 50
Decker, Garrett F	Cranston	37.9	10 00	379 00
Decker, Garrett F	Cranston	5.8	5 00	29 00
Dewing, Martin (estate of)	Providence	112.0	10 00	1,120 00
Dewing, Martin (estate of)	Providence	95.8	5 00	479 00
Dewing, Martin (estate of)	Providence	174.6	1 00	37 46
Dewing, Ardelia C	Providence	7.1	10 00	71 00
Dewing, Ardelia C	Providence	5.0	5 00	25 00
Dodge, John W	Barrington	94.8	10 00	948 00
Dodge, John W	Barrington	77.2	5 00	386 00
Dodge, Sarah M	Warwick	5.1	10 00	51 00
Dodge, David R	Warwick	19.0	10 00	190 00
Dodge, David R	Warwick	63.3	5 00	316 50
Fortin, James	Warwick	1.8	10 00	18 00
Fortin, James	Warwick	10.2	5 00	51 00
Freeman, Walter	Providence	25.1	10 00	251 00
Field, Waterman E	Warwick	14.0	10 00	140 00
Field, Waterman E	Warwick	73.7	5 00	368 50
Gardiner, Joseph W	Barrington	35.9	10 00	359 00
Gardiner, Joseph W	Barrington	380.6	5 00	1,903 00
Gladding, John A. C. & Sons	Bristol	48.3	10 00	483 00
Gladding, Theadore O	Bristol	4.8	10 00	48 00
Gladding, Theadore O	Bristol	95.2	5 00	476 00
Goodspeed, Joseph W	Warren	177.2	10 00	1,772 00
Goodspeed, Joseph W	Warren	36.3	5 00	181 50

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Sample of a set of mussels upon oysters in 1902.

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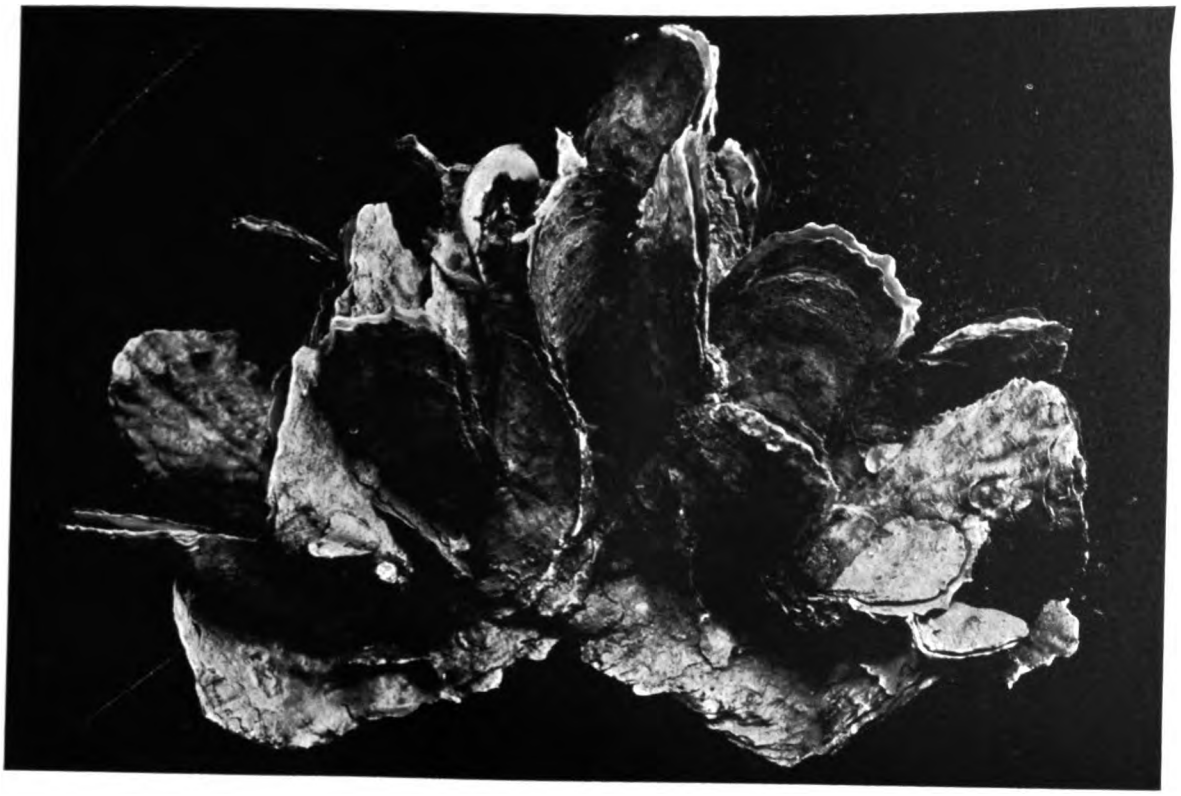

A thick set of oysters.

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ALPHABETICAL LIST.—Continued.

NAME.	Town.	Acres.	Rent. per acre.	Amount.
Greene, George T., Jr	Warren	45.7	10 00	457 00
Greene, George T., Jr	Warren	77.0	5 00	385 00
Griffin, John E	East Providence	4.0	10 00	40 00
Gray, Edward C	Tiverton	18.0	10 00	180 00
Hart, George W	Warren	3.0	10 00	30 00
Higgins, Robert W	Providence	79.2	10 00	792 00
Higgins, Robert W	Providence	10.4	5 00	52 00
Higgins, Robert W	Providence	3.0	1 00	3 00
Hunt & Blount	Warren	39.3	10 00	393 00
Hunt & Blount	Warren	16.4	5 00	82 00
Jenerson, Oliver L	Cranston	2.7	10 00	27 00
Jenerson, William F	Warren	7.1	10 00	71 00
Johnson, Henry L	Warwick	8.6	10 00	86 00
Johnson, Henry L	Warwick	6.4	5 00	32 00
Johnson, Charles H	Warwick	1.0	10 00	10 00
King, Henry	Warwick	2.0	10 00	20 00
Logan, Edgar	North Kingstown	3.0	10 00	30 00
Logan, Annie	North Kingstown	1.2	10 00	12 00
Martin, Benjamin B	Warren	632.9	10 00	6,329 00
Martin, Benjamin B	Warren	2,275.2	5 00	11,376 00
Matteson, Edmund H	Warren	46.6	10 00	466 00
Matteson, Edmund H	Warren	67.6	5 00	338 00
McEleney, Patrick (estate of)	East Providence	14.3	10 00	143 00
Milliken, John W	Warwick	7.0	10 00	70 00
Milliken, John W	Warwick	13.9	5 00	69 50
Nevelle, John E	Warwick	.8	10 00	8 00
Norgoord, Christian	Warwick	82.8	10 00	828 00
Norgoord, Christian	Warwick	286.2	5 00	1,431 00
Parmelee, Charles W	Providence	885.0	10 00	8,850 00
Parmelee, Charles W	Providence	1,399.0	5 00	6,995 00
Payne & Butler	East Providence	26.4	10 00	264 00
Payne & Butler	East Providence	8.5	5 00	42 50
Pettis, Jane W	North Kingstown	42.1	10 00	421 00
Pettis, Jane W	North Kingstown	47.8	5 00	239 00
Pettis, Robert	Cranston	156.2	10 00	1.562 00
Pettis, Robert	Cranston	366.8	5 00	1,834 00
Rose, Walter H	Warren	17.8	10 00	178 00
Rose, Walter H	Warren	8.9	5 00	44 50
Robertson, Richard A	Providence	16.1	10 00	161 00
Robertson, Richard A	Providence	32.1	5 00	160 50
Rooks, William J	Warwick	4.0	10 00	40 00

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ALPHABETICAL LIST.—Concluded.

NAME.	Town.	Acres.	Rent per acre.	Amount.
Rooks, Benjamin J	Warwick	36.9	10 00	369 00
Rooks, Benjamin J	Warwick	7.0	5 00	35 00
Rooks & Havens	Warwick	51.7	10 00	517 00
Rooks & Havens	Warwick	61.3	5 00	306 50
Satterly & Dickenson	Warwick	52.0	5 00	260 00
Salisbury, William A	Providence	20.0	10 00	200 00
Salisbury, William A	Providence	8.5	5 00	42 50
Shepard, John	Bristol	79.0	10 00	790 00
Shepard, John	Bristol	19.6	5 00	98 00
Sheldon, Sidney T	Cranston	14.5	10 00	145 00
Smith, John T	Warren	39.9	10 00	399 00
Smith, John T	Warren	17.2	5 00	86 00
Smith, Frank W	Warren	161.0	10 00	1,610 00
Smith, Frank W	Warren	229.0	5 00	1,145 00
Smith, Israel A	Cranston	2.0	10 00	20 00
Smith, Joseph H	Cranston	1.0	10 00	10 00
Smith, Henry A	Cranston	3.0	10 00	30 00
Smith, B. Frank	North Kingstown	29.0	10 00	290 00
Smith, B. Frank	North Kingstown	46.6	5 00	233 00
Smith, Alonzo C	North Kingstown	4.0	5 00	20 00
Sunderland, William L	East Providence	480.2	10 00	4,802 00
Sunderland, William L	East Providence	288.3	5 00	1,441 50
Tetlow, Edwin	Providence	19.7	10 00	197 00
Tetlow, Edwin	Providence	52.9	5 00	264 50
Thompson, George H	Barrington	1.3	10 00	13 00
Welden, William	Warwick	82.3	5 00	411 50
Wheeler, Walter E	Westerly	25.2	10 00	252 00
Wheeler, Walter E	Westerly	176.0	5 00	880 00
Wheeler, Alfred P	Warren	3.0	10 00	30 00
White, Mary J	Warwick	2.0	10 00	20 00
Zoller, August F	Providence	193.9	10 00	1,939 00
Zoller, August F	Providence	372.4	5 00	1,862 00

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ALPHABETICAL LIST

Of those who have taken out oyster ground in 1906, *and the number of acres and the price per acre so taken.*

NAME.	Acres.	Rent per acre.	Amount.
Aldrich, Charles H	5.2	$10 00	$52 00
Aldrich, Charles H	1.1	5 00	5 50
Balkcom, Sidney A	4.9	10 00	49 00
Balkcom, Sidney A	1.6	5 00	8 00
Barney, Francis R	9.5	10 00	95 00
Baker, Joseph W	12.3	10 00	123 00
Baker, Joseph W	6.1	5 00	30 50
Bell, George S., Jr	15 0	10 00	150 00
Bourne, C. E. & Sons	2.7	10 00	27 00
Bourne, C. E. & Sons	40.3	5 00	201 50
Buckingham, Erastus M	5.6	10 00	56 00
Brown, Edward V	.7	10 00	7 00
Brown, Edward V	3.0	5 00	15 00
Church, George H	2.0	10 00	20 00
Coggeshall, Josiah	4.9	10 00	49 00
Coggeshall, Josiah	5.9	5 00	29 50
Covo, George H	7.5	10 00	75 00
Covo, George H	3.7	5 00	18 50
Cottrell, George F	11.4	10 00	114 00
Cottrell, George F	43.6	5 00	218 00
Connolly, Thomas H	97.0	10 00	970 00
Connolly, Thomas H	39.0	5 00	195 00
Crowell, Jesse E	5.9	5 00	29 50
Decker, Garrett F	3.5	10 00	35 00
Dodge, John W	15.8	10 00	158 00
Dodge, John W	17.2	5 00	86 00
Dodge, David R	4.0	10 00	40 00
Dodge, David R	36.5	5 00	182 50
Field, Waterman E	55.0	5 00	275 00
Gladding, Theadore O	4.8	10 00	48 00
Gladding, Theadore O	95.2	5 00	476 00
Greene, George T., Jr	.6	10 00	6 00
Greene, George T., Jr	20.6	5 00	103 00
Griffin, John E	2.0	10 00	20 00
Jenerson, William L	7.1	10 00	71 00

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ALPHABETICAL LIST.—Concluded.

NAME.	Acres.	Rent per acre.	Amount.
Johnson, Henry L.	8.6	10 00	86 00
Johnson, Henry L.	1.4	5 00	7 00
Martin, Benjamin B.	140.4	10 00	1,404 00
Martin, Benjamin B.	1,298.8	5 00	6,494 00
Matteson, Edmund H.	.6	10 00	6 00
Matteson, Edmund H.	15.3	5 00	76 50
Norgoord, Christian	82.8	10 00	828 00
Norgoord, Christian	286.2	5 00	1,431 00
Parmelee, Charles W.	329.7	10 00	3,297 00
Parmelee, Charles W.	591.8	5 00	2,959 00
Pettis, Jane W.	34.3	10 00	343 00
Pettis, Jane W.	47.8	5 00	239 00
Robertson, Richard A.	8.4	10 00	84 00
Rooks & Havens	21.2	10 00	212 00
Rooks & Havens	3.8	5 00	19 00
Rooks, Benjamin J.	36.9	10 00	369 00
Rooks, Benjamin J.	7.0	5 00	35 00
Satterly & Dickenson	5.0	5 00	25 00
Shepard, John	35.7	10 00	357 00
Shepard, John	7.8	5 00	39 00
Sheldon, Sidney T.	14.5	10 00	145 00
Smith, John T.	2.4	10 00	24 00
Smith, Frank W.	71.1	10 00	711 00
Smith, Frank W.	148.2	5 00	741 00
Smith, B. Frank	29.0	10 00	290 00
Smith, B. Frank	46.6	5 00	233 00
Sunderland, William L.	174.5	10 00	1,745 00
Sunderland, William L.	100.3	5 00	501 50
Smith, Alonzo C.	4.0	5 00	20 00
Tetlow, Edwin	4.0	10 00	40 00
Tetlow, Edwin	20.1	5 00	100 50
Welden, William	39.3	5 00	196 00
Zoller, August F.	36.2	10 00	362 00
Zoller, August F.	74.4	5 00	372 00

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Oysters of one season's growth, set on both sides of one shell.

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Oysters of one season's growth, set on both sides of one shell.

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APPENDIX B.

PUBLIC LAWS RELATING TO SHELL FISHERIES.

CHAPTER 853.

AN ACT IN AMENDMENT OF AND IN ADDITION TO CHAPTER 170 OF THE GENERAL LAWS, ENTITLED "OF PRIVATE AND SEVERAL OYSTER FISHERIES."

Passed March 29, 1901.

It is enacted by the General Assembly as follows:

Commissioners of shell fisheries, how elected and term of office.

SECTION 1. There shall be elected by the general assembly, in grand committee, five commissioners of shell fisheries, one from each county, who shall hold office for the term of five years and until their successors, respectively, shall be elected and qualified to act. Any vacancy that may occur in said offices while the general assembly is not in session may be filled by the governor until such time as some person elected by the general assembly, in grand committee, to fill such vacancy, shall be qualified to act. Any person elected by the general assembly to fill such vacancy shall hold office for the unexpired term of the person whose place he is elected to fill. They shall have power and authority to elect a clerk and prescribe his duties: *Provided*, that nothing in this act shall be so construed as to affect the tenure of office of the present commissioners of shell fisheries, who shall continue to hold their offices for the terms for which they were elected.

To give bond.

SEC. 2. The said commissioners, previous to entering upon the duties of their office, shall severally give a bond,

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with sureties satisfactory to the general treasurer, in the sum of one thousand dollars, with condition to faithfully perform the duties of the office according to law.

To make annual report.

SEC. 3. The said commissioners shall make annual report to the general assembly at its January session of their doings and the condition of this department of the public service, including a detailed statement of all moneys received and expended on account thereof.

Office of.

SEC. 4. The said commissioners shall have an office in the state house in the city of Providence, where the maps, charts, books, leases, and other property connected with said commission shall be kept.

Not required to give surety for costs.

SEC. 5. Each of said commissioners shall, by virtue of his office, make complaints for any violation of the laws of this state relating to shell fisheries, and of any subsequent amendments thereof, without giving recognizance or surety for costs.

May appoint deputies.

SEC. 6. The said commissioners may appoint such deputies as they shall deem necessary for the detection and prosecution of any violation of the laws of this state relating to shell fisheries. Each of said deputies appointed as aforesaid shall be, by virtue of his office, a special constable, and as such deputy may, without warrant, arrest any person found violating any of said laws, and detain him for prosecution not exceeding twenty-four hours, and may seize any boat or vessel used in such violation, together with her tackle, apparel, and furniture, and all implements belonging thereto. Said commissioners may make all necessary regulations for the enforcing of said laws, and they shall be allowed their actual disbursements made in carrying the same into effect.

May lease certain lands as private oyster ground.

SEC. 7. Said commissioners may, unless otherwise by statute prohibited, agree to lease in the name of the state, by public auction or otherwise, to any suitable person, being an inhabitant of this state, any piece of land within the state,

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covered by four feet of tide-water at mean low tide as delineated upon the plats in the office of commissioners of shell fisheries, and not within any harbor line, to be used as a private and several oyster fishery for the planting and cultivation of oysters thereon, upon such terms and conditions as they may deem proper, but not for a longer term than ten years or for a shorter term than five years, nor for a rent of less than ten dollars per annum for every acre to be leased, where the water is of the depth of less than twelve feet at mean low water, as shown on the plats in the office of the commissioners of shell fisheries, and not agreeing to lease more than one acre at a time in one lot or parcel to one person or firm; but in drawing such leases said commissioners may include in the instrument of lease one or more acres of land so leased by them, and all such leases shall be made and executed free of expense to the lessees; and neither of such commissioners shall at any time be interested in any lease of ground for planting oysters, or in the cultivation or product thereof: *Provided, however*, that in Little Narragansett bay and in Pawcatuck river below "Pawcatuck rock," so-called, the said commissioners may let such land on terms as to time and rentals as may seem to them best.

Same subject.

SEC. 8. The said commissioners may let and lease any lands within the state covered by tide-water where the said water is of the depth of at least twelve feet according to the plats in the office of the commissioners of shell fisheries at the average low water, for the purpose of having the said land used in planting and cultivating oysters in the deep waters of Narragansett bay and tributaries, at an annual rental of not less than five dollars per acre, for a term not exceeding ten years from such letting.

Penalty for wrongfully claiming public oyster ground.

SEC. 9. Any person who shall wrongfully make claim to any public oyster ground, of which he has no lease or title from the state, by erecting bounds or monuments thereon of

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any description, or otherwise claiming title to such land, shall for the first offence pay a fine of twenty dollars and costs, and for every subsequent offence pay a fine of fifty dollars and costs, one-half thereof to the use of the state and the other half to the complainant.

Surveys and plats of oyster grounds to be done at expense of state.

SEC. 10. The said commissioners shall cause the original surveying and platting of all lands for planting and cultivating oysters under provisions of this chapter to be done at the expense of the state and without charge to the lessees; and the state auditor shall draw his order for the payment of said surveys and platting upon the general treasurer, upon properly presented vouchers approved by said commissioners, and the general treasurer shall pay said orders out of any moneys that may be in his hands not otherwise appropriated.

May cancel or modify leases, etc.

SEC. 11. The said commissioners may at the request of the lessee, for cause shown, cancel or modify any lease, or they may remit or abate the rent reserved therein if it shall be made to appear to the satisfaction of the commissioners that it would be equitable so to do.

Certain lands are not to be let.

SEC. 12. The said commissioners shall not let any land north of a line extending across Providence river from Field's Point to Kettle Point; or let any lands west of a line drawn from Warwick Neck light to Pojack Point, at Potowomut Neck; or let any land between Pomham light and Nayatt light or between Pawtuxet Neck and Rocky Point in-shore from land already leased; or let any of the ponds in Little Compton, Charlestown, South Kingstown, New Shoreham, Tiverton, or Westerly; or let the channel between Long Neck and Marsh Island flats, from the channel in Providence river to the bridge in Pawtuxet: *Provided, however*, that nothing in this act shall be so construed as to affect any of the lands which have been leased or the releasing thereof.

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Application for leases to be advertised.

SEC. 13. The said commissioners shall give notice of every application for a lease of land for the planting of oysters by publication twice a week for two successive weeks in some daily newspaper published in the city of Providence, and also once a week for two successive weeks in some newspaper published in the county nearest to which the ground is located, describing the land therein applied for and giving the name and residence of the applicant and the day, hour, and place where the land will be let; which day shall in all cases where the first hearing upon such an application is to be had be upon the first or third Friday of the month, and the commissioners may give such further notice of such application as they may deem to be necessary to inform persons interested of the pendency of such application, and the actual costs of publishing said notices shall be paid by the applicants.

Adjournments, effect of decision.

SEC. 14. Said commissioners may adjourn such hearing from time to time, and may issue process to compel the attendance of witnesses for either party, and shall give notice to all parties who have appeared before them upon any application of the time and place when their decision will be given; and such decision shall be final, unless appellate proceedings are taken and prosecuted as hereinafter provided.

Petition to the common pleas division.

SEC. 15. Any person aggrieved by the decision of the commissioners upon any application for a private or several oyster ground or oyster fishery may petition the common pleas division of the supreme court within and for the county nearest to which said land so applied for lies, for a reversal or modification of such decision, in like manner and with the same procedure, excepting where a different procedure is provided in this act, as prescribed in sections fifteen and sixteen of chapter forty-six in the case of petition for relief for over-assessment for taxes.

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When to be presented.

SEC. 16. Application for citation in such case shall be made to the clerk of said common pleas division within five days from the day such decision shall have been made, and the petitioner shall, at or before the time for filing his petition, file with said clerk a copy of the proceedings before the commissioners, and a bond, signed by him or by some one in his behalf, with sufficient surety, in the sum of fifty dollars, payable to said clerk for the use of the state, with condition to prosecute such petition to final judgment and to pay such witness fees and the costs of summons incurred by any party opposing such petition as the court shall award, in case the decision of the commissioners shall not be reversed.

How to be tried.

SEC. 17. Such case shall be heard and tried in the same manner as other cases entered upon the docket of said court, and the judgment of the court (which shall be entered immediately upon the rendition of decision or verdict) shall be conclusive upon the question whether said land shall or shall not be leased, and the commissioners shall grant or refuse a lease accordingly.

Leases how executed, what to contain, etc.

SEC. 18. Such leases shall be executed by such lessee, as well as by said commissioners, in two parts, one part thereof to be delivered to such lessee and the other part thereof to be retained by said commissioners and recorded in a book kept for that purpose, and shall contain proper covenants for the payment of rent and the performance of the conditions and observance of the restrictions therein set forth, with proper clauses reserving to said commissioners a right to reenter on behalf of the state and to terminate said lease for breach of any of such covenants.

Land leased, to be platted, etc.

SEC. 19. Said commissioners shall before granting any such lease cause the land to be leased as aforesaid to be surveyed and platted, and shall in all cases cause proper bounds with marks thereon to be set up either on the shore opposite

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and nearest to such land to be leased as aforesaid, in order to define the limits thereof, or shall cause such land to be leased as aforesaid to be marked with stakes or buoys at the corners of the ground leased, with such marks thereon as they may direct. Such bounds, stakes, or buoys, with the marks thereon, shall be renewed whenever the commissioners shall direct.

Commissioners to direct the work.

SEC. 20. The drawing and executing of such leases, the original surveying and platting, shall be done by said commissioners without expense to the lessees. The setting up of the bounds, stakes, or buoys shall in all cases be done by the lessee under the direction of the commissioners.

Penalty for injury to bounds, etc.

SEC. 21. Every person who shall willfully injure, deface, destroy, or remove such marks or bounds, or deface any mark thereon, or shall tie or fasten any boat or vessel to any such stake or buoy, shall be fined twenty dollars for each offence, one-half thereof to the use of the state and one-half thereof to the use of the complainant. Every such person shall, in addition thereto, be liable in an action of the case to pay double damages and costs to the person who shall be injured by having the marks and bounds, stakes, or buoys of their said lots injured, defaced, removed, or destroyed as aforesaid.

Civil liability. Oysters on ground leased are the personal property of the lessee.

SEC. 22. The oysters planted or growing in any private oyster ground leased as aforesaid shall, during the continuance of the lease, be the personal property of the lessee of such oyster ground.

Penalty for taking oysters from a private bed without consent.

SEC. 23. Every person who shall work a dredge, pair of oyster tongs or rakes, or any other implement for the taking of shellfish of any description, upon any private and several oyster ground or bed without the consent of the lessee or owner thereof, or who shall, while upon or sailing over any such ground or bed, cast, haul, or have overboard any such dredge, tongs, rake, or other implement for the taking of

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shellfish of any description, under any pretense or for any purpose whatever, without the consent of such lessee or owner, shall for the first offence be fined not exceeding twenty dollars or be imprisoned not exceeding thirty days, and for every subsequent offence shall be fined not exceeding one hundred dollars or be imprisoned not exceeding six months.

Commissioners are to enforce leases.

SEC. 24. Said commissioners shall from time to time diligently inspect and ascertain whether or not the terms and restrictions of the leases are kept and performed in a just and proper manner, and whether or not the rents are punctually paid; and in case said terms and restrictions are not kept and performed, or said rents are not punctually paid, the commissioners shall forthwith enter upon the land so leased and terminate the lease.

May sue for rents.

SEC. 25. The commissioners may, in the name of the state, institute any legal proceedings that may be necessary for the collection of such rent. The commissioners may take

May take possession of and sell lessee's interest if rent is not paid.

possession of any lot leased, upon which the rent shall not have been paid, and may dispose of said lot with all the oysters thereon at public acution to the highest bidder, first giving notice of the time and place of sale by publishing the same at least once each week for two successive weeks in some newspaper published in the city of Providence, with power to adjourn such sale from time to time, giving like notice of such adjournment; to make and execute to the purchaser at such sale a good and sufficient conveyance of all the right, title, and interest of said lessee in and to the lot leased, together with the oysters thereon; and to receive the proceeds of such sale, and from said proceeds to retain all sums due and owing the state for rent as aforesaid, together with all expenses incident to such sale, rendering and paying the surplus of said proceeds of sale, if any there be over and above the amounts so to be retained as aforesaid, to said lessee, his heirs, executors, administrators, or assigns.

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Specimens of full-grown native Pacific Coast oysters.

UNIV. OF MICH.

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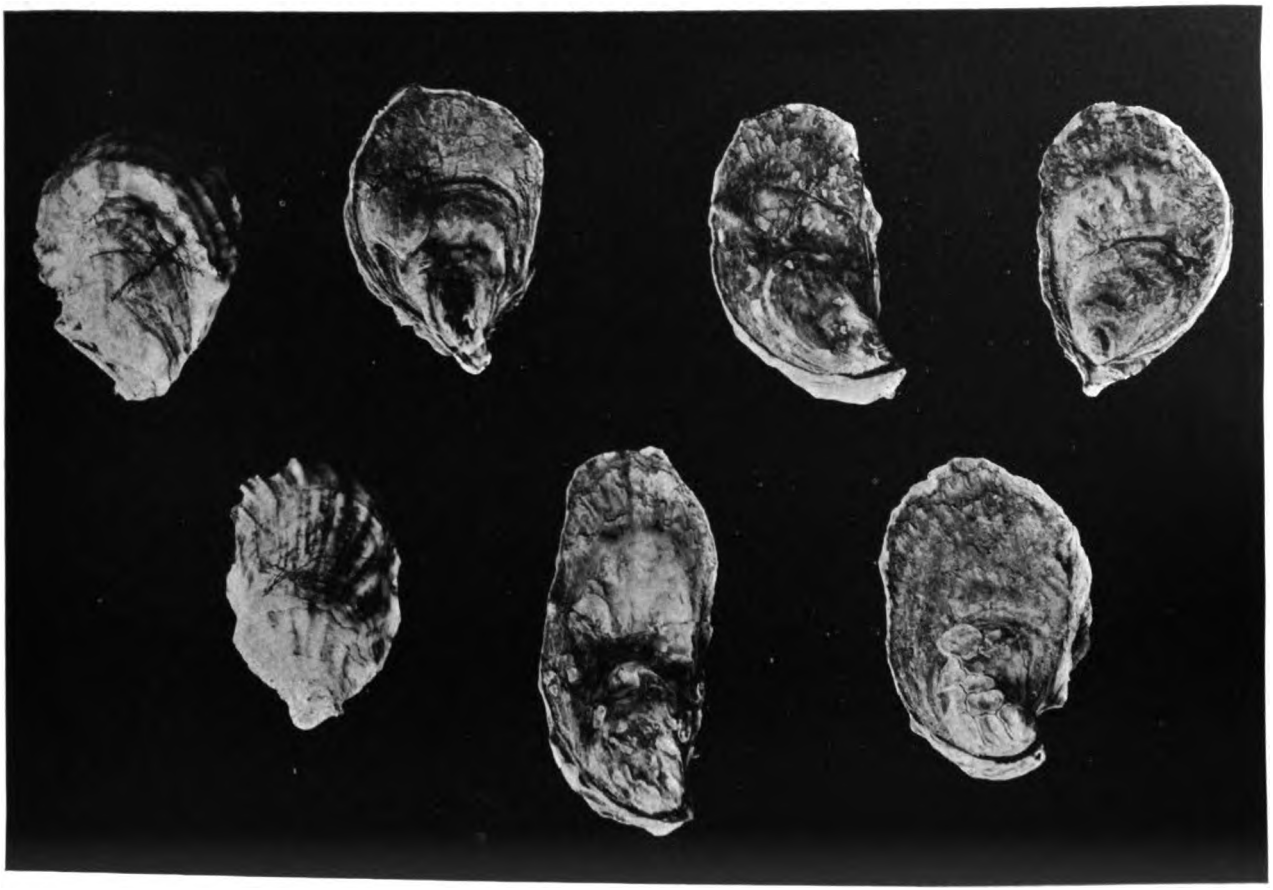

Eastern oysters, two years old, planted in Pacific Coast waters (Puget Sound) in April, 1905, and taken up in November, 1906.

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Native Japanese oyster, planted in Pacific Coast waters.

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Oysters not to be taken between sunset and sunrise.

SEC. 26. Every person who shall take oysters from any private and several oyster bed, except between the hours of sunrise and sunset, shall be fined twenty dollars for each offence, one-half thereof to the use of the state and one-half thereof to the use of the complainant; and every boat or vessel used or in any way employed in so doing shall, together with its tackle, apparel, furniture, and implements on board, be forfeited.

Penalty for unlawful taking from a private oyster bed.

SEC. 27. Every person who shall wrongfully take and carry away oysters from a private oyster bed shall for the first offence be fined fifty dollars and be imprisoned for thirty days, and for every subsequent offence shall be fined one hundred dollars and be imprisoned for six months.

Police constable may arrest without a warrant on view of an offence.

SEC. 28. Any police constable may in view of the commission of any offence against the provisions of this act upon any of the public waters of the state arrest the offender without warrant and detain him for prosecution not exceeding twenty-four hours.

Penalty for injury to oyster grounds by any means.

SEC. 29. Every person who shall willfully break up, damage, or injure any bed of oysters, or any tract of land leased from the state for an oyster bed, by depositing thereon earth, stones, or dredgings or scoopings from the river or docks, or in any other manner, shall be fined not exceeding five hundred dollars, one-half thereof to the use of the state and one-half thereof to the use of the complainant; and shall forfeit his boat or vessel, with her tackle, apparel, and furniture, and all the implements by him used in injuring such oyster bed.

Penalty for violation of this chapter upon second conviction.

SEC. 30. Every person convicted a second time of a violation of any of the provisions of this act shall, in addition to the penalties herein before mentioned, be deprived of the privilege of fishing for oysters in the waters of the state for the space of three years thereafter, under penalty of thirty days imprisonment for each offence.

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Penalty for taking more than two bushels of oysters daily from Trustan pond.

SEC. 31. Every person who shall take more than two bushels of oysters during any one day from Trustan pond, in South Kingstown, shall be fined not less than five dollars nor more than twenty dollars for every bushel so taken above two bushels.

Commissioners to act as special constables; with what powers.

SEC. 32. Each of said commissioners shall be by virtue of his office a special constable, and, as such commissioner, may arrest any person found violating any of the provisions of this act, and may seize any boat or vessel, with her tackle, apparel, and furniture, and all implements belonging thereto, when employed in taking oysters or in injuring any oyster bed in violation of the provisions of this act, and shall make complaint when called upon to do so for all such violations, and in any such complaint he shall not be required at the time of complaint or thereafter to enter into recognizance or in any way to become liable for the costs that may accrue thereon; and the attorney-general shall, when notified to do so by the complainant, prosecute all such complaints in the court where the same shall be made or be pending; and all cases of appeal thereof from the sentence of a district court, and all questions arising under the same, or under any complaint and warrant made under the provisions of this act, in either division of the supreme court, shall be conducted by said attorney-general.

May employ a surveyor.

SEC. 33. A surveyor may be employed to fix the place or otherwise to designate the locality of any violation of the provisions of this act, and reasonable charges of such surveyor for such service shall be allowed by the court, if said employment shall be by said court deemed to have been necessary; and such charges when allowed as aforesaid shall be taxed in the bill of costs.

Leases validated.

SEC. 34. All leases of oyster grounds heretofore granted by the commissioners of shell fisheries to any party of parties residents of this state are hereby validated and confirmed.

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SEC. 35. Chapter 170 of the General Laws and all acts and parts of acts inconsistent herewith are hereby repealed, and this act shall take effect from and after its passage.

CHAPTER 858.

AN ACT IN AMENDMENT OF AND IN ADDITION TO CHAPTER 169 OF THE GENERAL LAWS, ENTITLED "OF FREE AND COMMON OYSTER FISHERIES." Passed March 29, 1901.

It is enacted by the General Assembly as follows:

SECTION 1. Every person who shall take any oysters from the free and common oyster fisheries northerly of Field's Point and Kettle Point in this state between the first day of June in any year and the first day of April in the following year, or from the free and common oyster fisheries in any of the other waters of this state between the fifteenth day of May in any year and the fifteenth day of September, or expose any oysters for sale taken therefrom in violation of the foregoing provisions, shall be fined twenty dollars for each offence. Close time on oysters.

SEC. 2. Every person who shall take more than twenty bushels of oysters, including shells, during any twenty-four hours for each boat employed by him in taking the same, from any of the free and common oyster fisheries within the waters of the state shall be fined twenty dollars for every bushel so taken over and above said twenty bushels, one-half thereof to the use of the state and one-half thereof to the use of the complainant. Penalty for taking over 20 bushels of oysters in 24 hours.

SEC. 3. Every person who shall take any oysters from any free and common oyster fishery within this state, with dredges or any other instrument, or by any other method more destructive to oyster beds than the usual method of taking them by oyster tongs, shall forfeit the boat or vessel Penalty for the use of dredges, etc.

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with its tackle, apparel, and furniture, and all implements thereto belonging, and in addition thereto shall be fined one hundred dollars, one-half thereof to the use of the state and one-half thereof to the use of the complainant.

Exceptions.

SEC. 4. Nothing in the preceding section shall be so construed to prevent any citizen of this state from taking oysters in the public waters of this state with dredges when the water at mean low tide is fifteen or more feet in depth: *Provided, however*, no such dredges shall be used or operated by any vessel propelled by machinery.

Oysters to be taken in day time, only.

SEC. 5. No person shall take oysters from a public oyster ground or bed except between the hours of sunrise and sunset on any day.

Citizens only may take shellfish.

SEC. 6. No person shall be allowed to fish for oysters or other shellfish within the public fisheries of this state, unless he and his employer are at the time, and have been for one year next preceding, residents of this state.

Penalties.

SEC. 7. Every person violating any of the provisions of sections four, five, and six of this act shall be fined twenty dollars for each offence, one-half thereof to the use of the complainant and one-half thereof to the use of the state; and every boat or vessel used in any way or employed in taking oysters or shellfish contrary to the provisions of any of said sections shall, together with its tackle, apparel, furniture, and implements on board, be forfeited.

Penalty on second conviction.

SEC. 8. Every person convicted a second time of a violation of any of the provisions of this act shall, in addition to the penalties before mentioned, be deprived of the privilege of fishing for oysters in the waters of the state for three years thereafter, under a penalty of thirty days imprisonment for each offence.

SEC. 9. Chapter 169 of the General Laws and all acts and parts of acts inconsistent herewith are hereby repealed, and this act shall take effect from and after its passage.

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CHAPTER 833.

AN ACT IN AMENDMENT OF AND IN ADDITION TO CHAPTER 173 OF THE GENERAL LAWS, ENTITLED "OF THE SCALLOP FISHERIES" Passed March 26, 1901.

It is enacted by the General Assembly as follows:

Penalty for taking of scallops between sunset and sunrise.

SECTION 1. Every person who shall take any scallops from any of the waters of this state between the hours of sunset and sunrise shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

Penalty for taking of more than what quantity in one day.

SEC. 2. Every person who shall take, in any one day, from any of the waters of this state, more than twenty-five bushels of scallops, including the shells, for each boat actually employed by him in taking the same, shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

Penalty for violation of close time.

SEC. 3. Every person who shall take any scallops from any of the waters of this state by dredging or by any other means at any time between the first day of January and the first day of September shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence; but nothing in this section contained shall be so construed as to prevent any person from taking scallops lawfully caught and bedded by him from the grounds in which he has planted them at any time between the first day of January and the fifteenth day of April.

Penalty for taking seed scallops.

SEC. 4. Every person who shall take any seed scallops from any of the waters of this state by dredging or by any other means, or shall have in his possession any seed scallops and shall fail immediately to restore them to their natural beds, shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

Scallop fishermen to be licensed.

SEC. 5. Every person, before engaging in the taking of scallops, shall obtain from the commissioners of shell fisher-

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ies a license for his boat or boats, the fee for which shall be five dollars for every boat thus engaged. And every person who shall take any scallops from any of the waters of this state without first obtaining such license from said commissioners shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence: *Provided, however*, that nothing in this section contained shall be so construed as to prevent any person from taking one bushel of scallops per day for his own use; *and provided, further*, that no boat shall be allowed to have more than two men, each of whom shall be allowed one bushel for his own use.

Licenses, when to expire, and fee for.

SEC. 6. All licenses shall expire on the thirty-first day of December of each year; and for every license issued by said commissioners there shall be paid to the clerk thereof a fee of twenty-five cents for his own use: *Provided*, that every person to whom a license is granted under the provisions of this act shall have had his home and residence in this state for the period of one year next preceding the granting of such license or the renewal thereof.

To be granted to residents of this state only.

Boats to be numbered.

SEC. 7. The commissioners of shell fisheries shall provide a number for every boat licensed by them; said number shall be black, eight inches in length, and shall be exposed in a conspicuous place upon each boat upon a white surface, and the deputies shall keep a record of all such licensed boats in a book kept for that purpose.

Penalty for opening scallops while catching them and throwing shells onto the beds, etc.

SEC. 8. Every person who shall open any scallops while catching them or throw the shells onto the scallop beds, and every person who shall throw back into the water any starfish, shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

Of the possession of scallops during close time.

SEC. 9. Possession by any person of any scallops between the fifteenth day of April and the first day of September shall be *prima facie* evidence before any court of competent jurisdiction that such scallops were taken in violation of this chap-

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ter; and every such person shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

Commissioners shall appoint deputies.

SEC. 10. The commissioners of shell fisheries shall appoint at least four deputies, whose duties shall be the enforcing of the provisions of this chapter; they shall be selected one from Bristol county, one from Kent county, one from Newport county, and one from Washington county. Each of said deputies appointed as aforesaid shall be by virtue of his office a special constable, and as such deputy may, without warrant, arrest any person found violating any of the provisions of this chapter and detain him for prosecution not exceeding twenty-four hours.

Fines, how to inure.

SEC. 11. Fines incurred under any of the provisions of this act shall inure one-half thereof to the use of the complainant and one-half thereof to the use of the state.

District courts to have concurrent jurisdiction with common pleas division of supreme court over offences under this chapter.

SEC. 12. The several district courts shall have concurrent jurisdiction with the common pleas division of the supreme court over all offences under this chapter and to the full extent of the penalties therein specified; parties defendant, however, having the same right to appeal from the sentences of said district courts as is now provided by law in other criminal cases.

SEC. 13. Chapter 173 of the General Laws, entitled "Of the scallop fisheries," and all acts and parts of acts inconsistent herewith are hereby repealed.

SEC. 14. This act shall take effect upon and after its passage.

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CHAPTER 1092.

Passed March 24, 1903.

AN ACT IN AMENDMENT OF SECTION 7 OF CHAPTER 853 OF THE PUBLIC LAWS, PASSED MARCH 29, 1901, ENTITLED "AN ACT IN AMENDMENT OF AND IN ADDITION TO CHAPTER 170 OF THE GENERAL LAWS, ENTITLED 'OF PRIVATE AND SEVERAL OYSTER FISHERIES.'"

It is enacted by the General Assembly as follows:

SECTION 1. Section 7 of Chapter 853 of the Public Laws, passed March 29th, 1901, entitled "An act in amendment of and in addition to Chapter 170 of the General Laws, entitled 'Of private and several oyster fisheries,'" is hereby amended so as to read as follows.

Commissioners of shell-fisheries may lease certain land as private oyster ground in the town of Westerly.

"SEC. 7. Said commissioners may, unless otherwise by statute prohibited, agree to lease in the name of the state, by public auction or otherwise, to any suitable person being an inhabitant of this state, any piece of land within the state, covered by four feet of tide water at mean low tide, as delineated upon the plats in the office of the commissioners of shell fisheries, and not within any harbor line: *Provided*, that in Brightman's Pond or Babcock's Pond, so-called, in the town of Westerly, said commissioners may agree to lease any piece of land therein, below mean low-water mark, whether the same is covered by four feet of tide water or not, to be used as a private and several oyster fishery for the planting and cultivation of oysters thereon, upon such terms and conditions as they may deem proper, but not for a longer term than ten years or for a shorter term than five years, nor for a rent of less than ten dollars per annum for every acre to be leased where the water is of the depth of less than twelve feet at mean low water, as shown on the plats in the office of the commissioners of shell fisheries, and not agreeing to lease more than one acre at a time in one lot or parcel to one person

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Oyster house of George T. Greene, Jr., at Warren, R. I.

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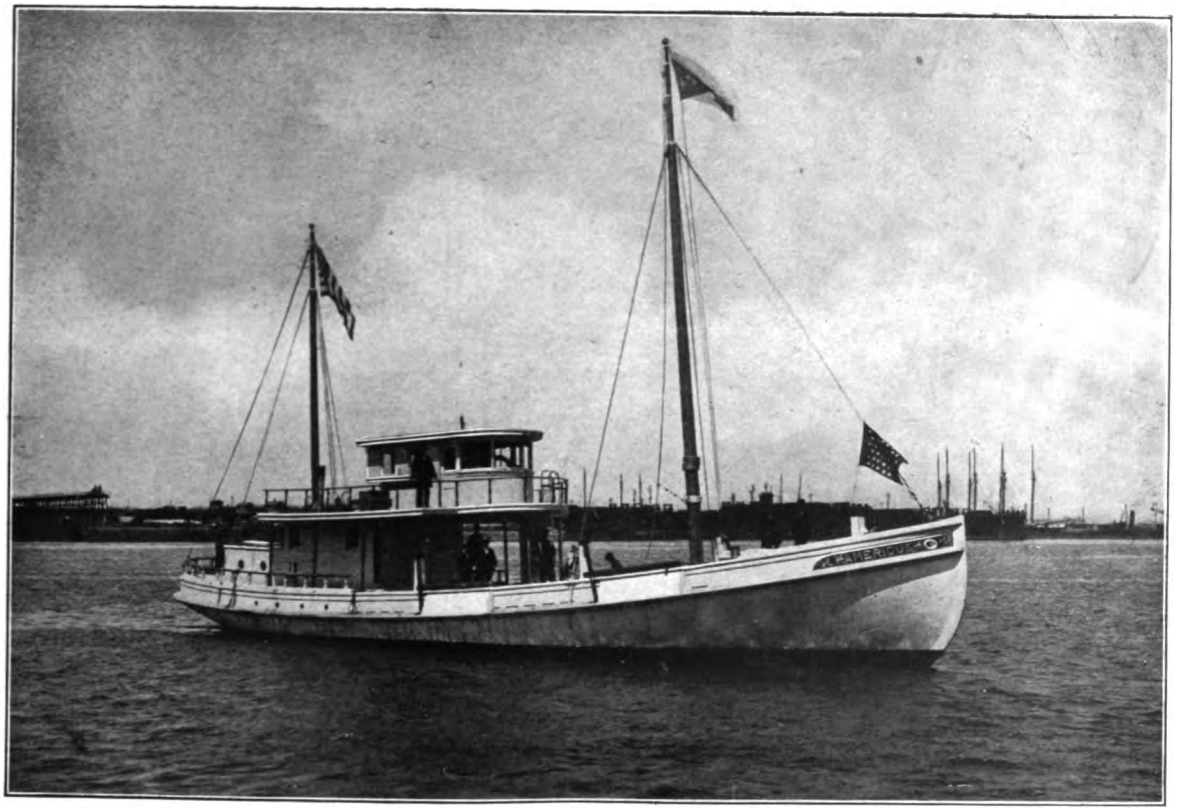

Naphtha boat of American Oyster Co., Providence.

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or firm, but in drawing such leases said commissioners may include in the instrument of lease one or more acres of land so leased by them, and all such leases shall be made and executed free of expense to the lessee; and neither of such commissioners shall at any time be interested in any lease of ground for planting oysters, or in the cultivation or product thereof: *Provided, however*, that in Little Narragansett bay, and in Pawcatuck river below 'Pawcatuck rock,' so-called, the said commissioners may let such land on terms as to time and rentals as may seem to them best."

CHAPTER 1222.

AN ACT FOR THE BETTER PROTECTION OF THE SHELL FISHERIES IN THE PUBLIC WATERS OF THIS STATE, PASSED AT THE JANUARY SESSION, A. D. 1905.

Passed April 13, 1905.

It is enacted by the General Assembly as follows:

SECTION 1. No person shall deposit in, or allow to escape into, or shall cause or permit to be deposited in, or allowed to escape into any of the public waters of this state, any substance which shall in any manner injuriously affect the growth of the shell-fish in or under said waters, or which shall in any manner affect the flavor or odor of such shell-fish so as to injuriously affect the sale thereof, or which shall cause any injury to the public and private fisheries of this state.

SEC. 2. Any person violating any of the provisions of this act shall upon conviction thereof be fined not less than five hundred dollars or more than two thousand dollars, one-half thereof to the use of the complainant and one-half thereof to the use of the state: *Provided*, that in case of conviction upon prosecution by the commissioners of shell fisheries the whole of any fine imposed shall go to the use of the state.

SEC. 3. Every person violating any of the provisions of this act shall be liable to pay to the party injured by such violation

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double the amount of damages caused thereby, to be recovered in an action of the case in any court of competent jurisdiction. It shall not be necessary before bringing suit for the recovery of such damages for a criminal prosecution to have been first instituted for the violation of the provisions of this act, nor shall the recovery of damages under this section be a bar to such criminal prosecution.

SEC. 4. It shall be the duty of the commissioners of shell fisheries to investigate all complaints made to them of the violation of any of the provisions of this act. For the purpose of such investigation said commissioners may make examination of the premises, hold public hearings, summon witnesses, and take testimony under oath, and they shall have power to punish, by fine or imprisonment or both, all contempt of their authority in any hearing before them. They may employ professional or expert services as they may deem desirable.

SEC. 5. It shall be the duty of the shell-fish commissioners to prosecute any person in their opinion guilty of the violation of any of the provisions of this act, and in all such prosecutions said commissioners shall not be required to enter into any recognizance or to give surety for costs. It shall be the duty of the attorney-general to conduct the prosecution of all cases brought by said commissioners under the provisions of this act. Complaints may be also brought and prosecuted by any citizen for any violation of its provisions.

SEC. 6. The expenses incurred by the commissioners of shell fisheries in the performance of the duties imposed upon them by this act shall be paid by the general treasurer, out of any funds in the treasury not otherwise appropriated, upon the presentation of vouchers therefor duly certified by their chairman.

SEC. 7. All provisions of the General Laws, of the Public Laws, and of any special law, inconsistent herewith, are hereby repealed, and this act shall take effect upon its passage.

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CHAPTER 1361.

AN ACT IN AMENDMENT OF AN ACT ENTITLED "AN ACT IN AMENDMENT OF SECTION 12 OF CHAPTER 893 OF THE PUBLIC LAWS, AS AMENDED BY SECTION 1 OF CHAPTER 966 OF THE PUBLIC LAWS, AS AMENDED BY CHAPTER 1068 OF THE PUBLIC LAWS, PASSED AT THE JANUARY SESSION, A. D. 1902."

Passed April 20, 1906.

It is enacted by the General Assembly as follows:

SECTION 1. Section 12 of Chapter 966 of the Public Laws, passed at the January session, A. D. 1902, is hereby amended so as to read as follows:

"SEC. 12. The said commissioners shall not let any land north of a line extended across Providence river from Field's Point to Kettle Point, or let any lands west of a line drawn from Warwick Neck Light to Pojack Point at Potowomut Neck; or west of a line drawn from Powder House Point to Gould Island; or west of a line drawn from Gould Island to New Ledge; or north of a line drawn from New Ledge to Almy's Wharf, so called, in the town of Portsmouth; or let any lands between the railroad bridge and Stone Bridge, so called, in the Seaconnet river in the towns of Portsmouth and Tiverton; or let any lands between Pomham Light and Nayatt Light; or between Pawtuxet Neck and Rocky Point in shore; or any land lying between a line running due east and west through the Rhode Island Yacht Club building and a line running due east and west through Pomham Beacon, and west of the channel from land already leased; or let any of the ponds in Little Compton, Charlestown, South Kingstown, New Shoreham, Tiverton, Portsmouth, or Westerly, or the Cove, so called, in the town of Portsmouth, except Brightman's pond or Babcock's pond, so called, in said Westerly: *Provided, however*, that said commissioners shall not let more than three acres in said Brightman's or Babcock's pond to any one person; *and provided, further*, that every person to whom any of the lands in said Bright-

Certain oyster lands not to be leased.

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man's or Babcock's pond shall be let under the provisions of this chapter shall have had his home and residence in this state for the period of three years next preceding the letting thereof; or let the channel between Long Neck and Marsh Island flats from the channel in Providence river to the bridge in Pawtuxet: *Provided, however*, that nothing in this act shall be so construed as to affect any of the lands which have been leased or the releasing thereof."

SEC. 2. This act shall take effect from and after its passage.

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APPENDIX C.

RULES GOVERNING THE LEASING OF OYSTER GROUNDS.

ADOPTED BY THE COMMISSIONERS OF SHELL FISHERIES, DECEMBER 29, A. D. 1903.

1. Application for oyster ground may be made at any time by any suitable person permitted by the statute laws governing the commissioners, except that where the ground has been applied for and refused for any cause the application must be submitted to the commissioners for action at some meeting called for the transaction of business, unless provided for elsewhere in these rules: *Provided, however*, that, except by vote of the commissioners, no application will be entertained from any person who is already in arrears for rent for more than one year.

2. Any application received shall be recorded and the advertising paid for at the time of receiving the same.

3. When any person shall make application for any oyster ground as by law provided, and the same shall be legally advertised, if at the time set for hearing of said application there shall be no objection to the leasing the same filed with the clerk of the Commissioners of Shell Fisheries, said clerk is hereby authorized in his discretion to grant the lease of the land thus applied for to the person having made such application. If there should be any opposition to the leasing of said land, the clerk shall refer the same to the Commissioners of Shell Fisheries for their decision.

4. When any person shall have made application for a lease of any oyster ground and the application shall have been rejected,

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nothing in these rules shall be so construed as to give any person any option or refusal of said land or of any unleased land wherever situated; but the said applicant may at the time of hearing and rejection file in the office of the Commissioners of Shell Fisheries a request to have the land advertised in his name in case the same is advertised within one year from said date, and in case such land is advertised within said period the said applicant shall be considered with any or all other applicants for the ground.

5. When more than one person shall make application for a lease of the same tract of land and the said applications shall have been advertised according to law, the commissioners shall decide to which and how many, if any, of said applicants a lease of the land so applied for shall be granted and the amount to be leased to each.

6. Whenever any person objects to the leasing of any tract of ground said person shall file his reasons in writing for so objecting with the clerk of the commissioners before the time set for the first hearing on the application. The hearing of the commissioners on the question of whether or not a lease shall be granted of said ground will be entirely confined to the said reasons filed in writing.

7. Whenever an objection to the leasing of any tract of ground has been properly filed the clerk of the commissioners shall, at his convenience, fix a date for an adjourned hearing before the commissioners.

8. In all cases where a grant of land has been made to any applicant such applicant must take no less than fifty per cent. of the area granted. Should any condition or circumstance arise to in any way prevent any applicant from taking this percentage of his application, the applicant must within two months submit the facts in the case to the commissioners for their action. In case it appears reasonable so to do, the commissioners will relieve the applicant from further obligation under the application. But in case of failure of any party to obtain such relief, no ground shall be granted him elsewhere for a period of two years.

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9. Whenever a portion of the amount granted to any person has been properly designated and the first survey completed and reported to the clerk, no part of the remainder shall be surveyed under such grant nor shall the person to whom it was granted have any further claim to have such remaining portion leased to him except by permission of the commissioners: *Provided, however*, that in cases where no other application or grant is standing for the same or adjoining ground, the applicant may have leased to him such area as comes under said grant if in the opinion of the clerk no other parties' interest will suffer by so doing.

10. Any ground duly advertised and granted must be promptly designated by the person to whom the grant is made within thirty days after being notified by the engineer that he is ready to make the survey. In case of failure to attend to the survey within said period of thirty days, the applicant shall lose his right to take the ground unless granted an extension of this time by vote of the commissioners. In case of failure to take the ground within said period of thirty days or within the time of extension granted by vote of the commissioners, the applicant's standing shall be determined by Rule 8.

11. No ground shall be put into use by any proposed lessee until the survey is completed and recorded in the clerk's office and the lease of the same accepted.

12. Any person to whom land has been granted must accept the lease of the same within thirty days after the date of the engineer's return to the clerk, or in default thereof lose his right to take such lease. In case of such default such person shall, in addition to losing his right to take the lease, pay to the State the entire cost of preparing such lease, including the cost of the survey.

13. The clerk may in his discretion transfer any lease of oyster ground from the lessee to any other suitable and proper person, on request of the lessee so to do.

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14. The clerk may in his discretion, on the request of the lessee, cancel any lease or any portion of a lease on which the rent is fully paid to the date of cancellation.

15. All lessees shall pay their rents to the clerk of the commission within one year after the same fall due. Rents paid between January 1 and March 1 will be received by the clerk at their net amount. Interest at the rate of six per cent. per annum will be assessed on all rents paid after March 1 of the year in which they become due. Failure to pay the rent on any lease within the year will be deemed sufficient cause for the commissioners to cancel such lease and to proceed to collect the rent according to law.

ADDITIONAL RULES ADOPTED MAY 3, 1904.

16. All leaseholders shall maintain at their own expense throughout the year proper stakes or buoys on all corners of land leased to them, except during such times as owing to storms, drifting ice, or other conditions it is impossible to keep such stakes or buoys in place.

17. Whenever the stakes or buoys marking leased ground are carried away the leaseholder of the ground must renew the same as soon as possible thereafter.

18. Leaseholders must in all such cases employ the engineer designated by the commission and appointed by them to do the surveying work for the State in making surveys of oyster grounds.

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ELEVENTH ANNUAL REPORT

OF THE

BOARD OF COMMISSIONERS

ON

UNIFORMITY OF LEGISLATION

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE, R. I.
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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REPORT.

To the Honorable, the General Assembly:

The undersigned, the Board of Commissioners on Uniformity of Legislation, appointed under authority of Chapter 352 of the Public Laws, present this, their eleventh annual, report.

To the great regret of his fellow members, James Tillinghast felt obliged to resign, and on February 2, 1906, Clarke H. Johnson was appointed in his place. John H. Stiness also resigned on the eve of his departure for Europe, and January 10, 1907, William R. Tillinghast was appointed in his place.

The sixteenth National Conference of the State Boards of Commissioners on Uniform State Laws was held in St. Paul, Minnesota, August 22, 24, and 25, 1907, and was attended by Amasa M. Eaton and Clarke H. Johnson, commissioners from this State.

Sixteen conferences have so far been held: the first, at Saratoga, for three days, beginning August 24, 1892, and the sixteenth at St. Paul, Minnesota, on August 22, 24, and 25, 1906.

The time of the sixteenth conference was largely taken up in the further consideration of the Uniform Sales Act drafted by Prof. Samuel Williston, of the Harvard Law School, and the Uniform Warehouse Receipts Act, drafted by Professor Williston and Barry Mohun, Esq., author of a well-known work on this subject. They were adopted, and it was voted to recommend them for passage by the legislatures of the several States. Copies of these acts are hereunto appended, marked, respectively, Exhibits "A" and "B."

In 1905 the conference adopted a resolution approving the action taken by the governor of Pennsylvania Hon. Samuel W. Penny-

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packer, under authority of the legislature of that State, in calling a congress of delegates from the States of the Union, to meet in Washington, District of Columbia, for the promotion of uniform legislation, by the States, on the subject of divorce.

As the object of this congress is identical with ours, the governors of the States having Commissioners on Uniform State Laws naturally appointed the same persons delegates to this Divorce Congress, with the result that when this congress met in Washington, February 19, 22, 1906, many of our members were in attendance, including Messrs. Eaton and Stiness, who were appointed from this State. The full history of the proceedings of this congress and of the legislation proposed by them may be found in the copy thereof submitted herewith, marked Exhibit "C."

We respectfully urge upon the General Assembly the adoption of all these laws.

Professor Williston was further employed to draft an act to make uniform the Law of Certificates of Stocks. The Committee on Commercial Law submitted drafts of a Bill of Lading Act and of a Partnership Act, the latter the work of Prof. James Barr Ames, the Dean of the Law School of Harvard University. These two acts were printed and distributed among the commissioners, in order to obtain expert comment and criticism and to facilitate the perfecting of these measures before their final adoption by the conference.

In drafting these uniform laws the members of the conference have not felt themselves bound to follow a rule of law because it has greater authority, or more decisions in its favor, if that rule is obviously a disadvantageous one or one that is not logical. Our aim is not only to furnish uniform rules of law, but good uniform rules. If we find many cases one way and many deciding the other way, although regretting they must do so because of the weight of authority, we can not doubt which is the better rule for a uniform law.

In the judgment of the National Conference, it can probably accomplish more towards securing uniformity of legislation among the States of the Union by taking one subject after another connected

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with the commercial interests of the country, such as Negtioable Instruments, Sales, Warehouse Receipts, Bills of Lading, Certificates of Stock, Partnership, etc., concerning which there is an acknowledged necessity for uniformity in legislation throughout the country, and preparing a uniform law on each topic with the aid of experts. A partial codification following the adoption of such uniform laws by the various State legislatures is especially needed in this country, where there are more than fifty courts of last resort, independent of each other and with no means other than this of bringing about a reconciliation of their differing opinions. It is to be hoped that in the decision of cases arising under our uniform laws these courts will strive to follow the decisions of the same questions in other States that have adopted the same laws, rather than to follow their own previous decisions, which it is manifest the uniform laws were intended to supersede by the adoption of a principle of the law that all the State courts should follow. In this way these courts can do their share in our work of harmonizing and making uniform the law on such subjects throughout the country.

At this time of the meeting of the conference, the rules and regulations for the enforcement of the National Pure Food Law, approved June 30, 1906, had not yet been announced. This law, which will be in force and effect from and after the first day of January, 1907, was favorably commented upon by the president of the conference in his annual address, and will be the subject of a special report to the conference at its next annual session.

At this sixteenth conference, the constitution and by-laws adopted at the meeting of the fifteenth conference at Narragansett Pier, in the State of Rhode Island, in 1905, were amended by adding to the list of standing committees a Committee on Banks and Banking, and by providing that all the officers of the conference except the assistant secretary should be chosen from the commissioners authorized to participate in the conference.

The following States, Territories, and districts have appointed commissioners to the conference:

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Arkansas, Alabama, Arizona, California, Colorado, Connecticut, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisanna, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Vermont, Virginia, Washington, and Wisconsin.

At the sixteenth annual conference there were commissioners present from the following States, Territories, and districts:

Alabama, Arizona, California, Connecticut, District of Columbia, Florida, Georgia, Illinois, Indiana, Kansas, Louisiana, Maine, Massachusetts, Minnesota, Nebraska, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, and Wisconsin.

At the sixteenth conference of the commissioners, Amasa M. Eaton, of Rhode Island, was elected president; John C. Richburg, of Illinois, vice-president; Talcott H. Russell, of Connecticut, treasurer; and Charles Thaddeus Terry, of New York, secretary. These officers, together with William H. Staake, of Pennsylvania; Francis B. James, of Cincinnati, Ohio; and Peter W. Meldrim, of Savannah, Georgia, constitute the executive committee of the conference, of which William H. Staake, of Pennsylvania, is the chairman.

At the same conference, reports were received from the Committees on Commercial Law, Francis B. James, of Ohio, chairman; Marriage and Divorce, Walter George Smith, of Pennsylvania, chairman; Insurance, Charles F. Libby, of Maine, chairman; Purity of Articles of Commerce, William H. Staake, of Pennsylvania, chairman; and the Torrens System of Registration of Titles to Land, John C. Richburg, of Illinois, chairman. Copies of these reports will appear in the printed proceedings of the conference, to which reference is made. No action in the way of an endorsement and recommendation of a particular statute, affecting any of these subjects, was taken by the commissioners.

The Committee on the Torrens System of Registration of title to

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Land, referred in approving terms to the work of the Pennsylvania Bar Association on this subject, and quoted very freely from the reports made to that association by Charles Wetherill, Esq., of the bar of Philadelphia, the chairman of the committee on that subject in the Pennsylvania Bar Association.

Reference was also made to the action of the National Conference of Insurance Commissioners, Attorneys-General, and others, which met in Chicago, and subsequently in St. Paul, Minnesota, but no definite action was taken by the conference.

A special committee on Vital and Penal Statutes, of which Francis L. Siddons, Esq., of the Washington, District of Columbia, Bar, was constituted the chairman, was appointed.

On the recommendation of the Executive Committee of the conference, the legislatures of the several States and their commissioners were urged to secure the passage of bills heretofore recommended by the National Conference, which have not been passed, and also to secure from their respective States a reasonable appropriation for the payment of a portion of the expenses of the National Conference.

When the General Assembly passed Chapter 352 of the Public Laws, creating this board, the work of this conference was in its initial stages. At that time the General Assembly made an appropriation of three hundred dollars for our expenses. The conference met every other year at Saratoga Springs, New York, and met during the intermediate years at places not remote. As only two of our number were able to attend these conferences, there was an unexpended balance of the annual appropriation, and therefore the Committee on Appropriations reduced the annual appropriation to two hundred dollars.

Now, however, circumstances have changed. We have framed the Negotiable Instruments Law and it has been adopted in twenty-eight States, one Territory, and by the Congress of the United States, in the District of Columbia.

After years of thorough study and preparation, we have framed

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a Uniform Sales Act and a Uniform Warehouse Receipts Act which we are now recommending for adoption throughout the country. We are preparing a Uniform Bills of Lading Act and a Uniform Partnership Act. Money is needed to pay for drafting these acts, as well as for printing and distributing them. We avail ourselves of the highest order of ability, professors in law schools and specialists, in drafting these uniform laws, for the undertaking calls for a knowledge of the laws and the decisions in every State in the Union. The American Bar Association makes an appropriation of seven hundred and fifty dollars a year for us, out of its surplus over expenses, its receipts consisting only of its membership dues of five dollars a year. The American Warehousemen's Association, in successive appropriations, has given us seventeen hundred dollars to pay for drafting and printing the Uniform Warehouse Receipts Act. The commissions from some of the States contribute to our treasury what they can out of their respective State appropriation, from one such State the contribution having been five hundred dollars each year for two years, the largest contribution of this kind we have received.

The commissioners attending our annual conferences and giving their time and legal knowledge to the prosecution of our work do so without compensation, moved by their desire to serve their country and to repay in some measure that debt that Lord Bacon said all lawyers owe to their profession.

They do not feel, however, that it is compatible with the dignity of the States they represent that it should be left for the American Bar Association and other associations and for a few of the States to pay for the work they are doing, which is of public importance, intended for the benefit of the whole country. The Executive Committee, pursuant to a vote of the conference, have therefore requested the commissioners, from such States as contribute little or nothing towards the expenses of the conference, in drafting, printing, and distributing our uniform State laws, to ask for some specific appropriation for that purpose from their respective State legislatures. These commissioners, therefore, ask that an annual,

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additional appropriation be made, for the purpose indicated, of three hundred dollars.

We conclude this report with an examination of the cases that have arisen under this law during the last year, in the courts of the States that have adopted it, with reference to the sections of the law as adopted in this State.

In accordance with Chapter 352, section 4, of the Public Laws, passed May 15, 1896, we report that the expenses of the board for the past year have been two hundred dollars for travelling and incidental expenses, which amount, being insufficient the commissioners have themselves paid the deficiency.

AMASA M. EATON,
CLARKE H. JOHNSON,
WM. R. TILLINGHAST,

Commissioners.

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EXHIBIT A.

The original draft of the sales was prepared in 1902–03 by Prof. Samuel Williston, of Cambridge, Massachusetts, at the request of the Commissioners on Uniform State Laws in National Conference. It was printed in the summer of 1903 and sent, with a request for criticism, to teachers of the Law of Sales and to other experts on the subject. Some criticisms were received, and with the light of these criticisms and his own further reflection, the draftsman presented to the Conference of Commissioners on Uniform State Laws, at its meeting at St. Louis, September 22, 23, and 24, 1904, a number of suggested amendments.

The draft was then gone over carefully, section by section, by the conference. Doubtful points and changes in wording were discussed and voted upon. The draft was then recommitted to the Committee on Commercial Law, with instructions to embody the changes adopted by the conference and to present a revised draft at the meeting of the conference in August, 1905.

No other draft was presented, in accordance with these instructions, at the meeting of the conference at Narragansett Pier in August, 1905. This draft included for the first time a number of sections on the transfer of property by means of documents of title. These sections are numbered sections 27–40 in the present draft. Because of these sections, it was thought best once more to recommit the draft.

At the meeting of the conference in St. Paul, in August, 1906, the following resolution was adopted:

"*Be it Resolved*, by the Commissioners on Uniform State Laws at their annual conference, held this twenty-eighth day of August, 1906:

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" (1) That the draft of an act entitled ' Draft of an Act to make Uniform the Law of Sales ' be approved, and that the legislatures of the several States be requested and are urged to enact the same law.

" (2) That Prof. Samuel Williston shall prepare appropriate notes of each section and correct any verbal inaccuracies therein.

" (3) That the Committee on Commercial Law cause said draft, act, and annotations, together with appropriate preface, introduction, and other matter that said committee may consider proper, to be printed and distributed.

" (4) That a sum not to exceed two hundred ($200) dollars be appropriated to the use of said committee for the printing and distribution of said act.

" (5) That the Assistant Secretary shall be the secretary of said committee and aid in the discharge of its duties."

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DRAFT OF AN ACT TO MAKE UNIFORM THE LAW RELATING TO THE SALE OF GOODS.

PART I.

FORMATION OF THE CONTRACT.

SECTION 1.—[CONTRACTS TO SELL AND SALES.] (1.) A contract to sell goods is a contract whereby the seller agrees to transfer the property in goods to the buyer for a consideration called the price.

(2.) A sale of goods is an agreement whereby the seller transfers the property in goods to the buyer for a consideration called the price.

(3.) A contract to sell or a sale may be absolute or conditional.

(4.) There may be a contract to sell or a sale between one part owner and another.

The most fundamental distinction in the law of sales is between a contract to sell in the future and a present sale. This distinction is defined in this section and is observed throughout the draft. The phrase "Contract of Sale" used in the English Act has been discarded.

SECTION 2.—[CAPACITY—LIABILITY FOR NECESSARIES.] Capacity to buy and sell is regulated by the general law concerning capacity to contract, and to transfer and acquire property.

Where necessaries are sold and delivered to an infant, or to a person who by reason of mental incapacity or drunkenness is incompetent to contract, he must pay a reasonable price therefor.

Necessaries in this section mean goods suitable to the condition in life of such infant or other person, and to his actual requirements at the time of delivery.

This section states the prevailing, though not wholly uniform, doctrine of the existing law. Mechem on Sales, § 122, *et seq.* The section follows *verbatim* Section 2 of the English Act except that the words "the sale and" which precede the last word in the section are omitted as introducing a possible ambiguity.

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FORMALITIES OF THE CONTRACT.

SECTION 3.—[FORM OF CONTRACT OR SALE.] Subject to the provisions of this act and of any statute in that behalf, a contract to sell or a sale may be made in writing (either with or without seal), or by word of mouth, or partly in writing and partly by word of mouth, or may be inferred from the conduct of the parties.

This follows the first part of Section 3 of the English Act. That Act contains the following proviso which was omitted as unnecessary:

"Provided that nothing in this section shall affect the law relating to corporations."

SECTION 4.—[STATUTE OF FRAUDS.] (1.) A contract to sell or a sale of any goods or choses in action of the value of five hundred dollars or upwards shall not be enforceable by action unless the buyer shall accept part of the goods or choses in action so contracted to be sold or sold, and actually receive the same, or give something in earnest to bind the contract, or in part payment, or unless some note or memorandum in writing of the contract or sale be signed by the party to be charged or his agent in that behalf.

(2.) The provisions of this section apply to every such contract or sale, notwithstanding that the goods may be intended to be delivered at some future time, or may not at the time of such contract or sale be actually made, procured, or provided, or fit or ready for delivery, or some act may be requisite for the making or completing thereof, or rendering the same fit for delivery; but if the goods are to be manufactured by the seller especially for the buyer and are not suitable for sale to others in the ordinary course of the seller's business, the provisions of this section shall not apply.

(3.) There is an acceptance of goods within the meaning of this section when the buyer, either before or after delivery of the goods, expresses by words or conduct his assent to becoming the owner of those specific goods.

Sub-section (1) of this section follows Section 4 (1) of the English Act with the exceptions stated below.

The words of the section of the English Act are somewhat altered from those of the seventeenth section of the Statute of Frauds, but the changes are such as to express more accurately the construction previously given by Lord Tenterden's Act and by the courts to the Statute of Frauds. See Chalmers (5th ed.) 16.

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In the United States a provision corresponding to the seventeenth section of the Statute of Frauds exists in all the States but Alabama, Arizona, Delaware, Illinois, Kentucky, Louisiana, New Mexico, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Texas, Virginia, and West Virginia.

In the remaining States the language of the statutes is by no means uniform, but the construction given by the courts is generally the same as that which has been given to the English Statute of Frauds, and which is now expressed in the Sale of Goods Act. There are some exceptions, however, to this. In the United States it is generally held that promissory notes, shares of stock, and other choses in action "which are subjects of common sale and barter and which have a visible and palpable form," are within the statute. This result is due in some cases to the express inclusion within State statutes of choses in action, but even where the statutes are similar to the English Statute of Frauds, a broader effect has been given to them. Under the definition of goods in Part VI it is clear that no choses in action would be included (Chalmers, 120), unless choses in action were expressly mentioned. The words "or choses in action" have therefore been inserted in the present draft. Similar words or the broad term "personal property" are found in the Statutes of Frauds now in force in about twenty of the States. Mechem on Sales, § 287.

The limit of price or value varies considerably in this country, fifty dollars is the commonest limit, but as many important States have no statute corresponding to this section of the Statute of Frauds and as it is universally recognized that a great deal of fraud is caused by the statute, it seemed wise to raise the limit of price considerably. Thereby small sales which are usually oral will not be affected, but large transactions which by prudent business usage should be in writing will be covered. It should be noticed that the English limit, ten pounds, which has been translated into fifty dollars in many American statutes, was fixed at a time when the value of a pound was much greater than it is now.

The first half of sub-section (2) is taken from the English Act which has enacted the rule laid down by Lee *v.* Griffin, 1 B. &. S. 272. Though this rule is the most scientifically exact, and has been so recognized by writers (*e. g.*, Benjamin on Sales, § 103), it has found little support in this country, even in cases decided since Lee *v.* Griffin. The qualification here added to the English subsection is intended to reproduce the rule laid down by Shaw, C. J., in Mixer *v.* Howarth, 21 Pick. 205, and by Ames, J., in Goddard *v.* Binney, 115 Mass. 450. The New York rule is still different, and in other States the line may not always be drawn at exactly the same point. The authorities are collected in Mechem, §§ 304-326, and the conclusion drawn in § 326 seems justified by the cases and justifies the form of this proposed draft:—"The Massachusetts rule seems likely to be received with favor wherever the courts are not debarred by earlier decisions from adopting it."

Sub-section (3) differs from the corresponding English provision, which enacts the rule first laid down in Kibble *v.* Gough, 38 L. T. n. s. 204, that any recognition of a pre-existing contract in regard to the goods is an acceptance, though accompanied by no assent, or indeed expressing dissent to the carrying out of the bargain. This rule has not been adopted anywhere in the United States, and the provision here suggested represents the American rule, as well as the early English rule. See Mechem, § 357 *et seq.*

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SUBJECT-MATTER OF CONTRACT.

SECTION 5.—[EXISTING AND FUTURE GOODS.] (1.) The goods which form the subject of a contract to sell may be either existing goods, owned or possessed by the seller, or goods to be manufactured or acquired by the seller after the making of the contract to sell, in this act called "future goods."

(2.) There may be a contract to sell goods, the acquisition of which by the seller depends upon a contingency which may or may not happen.

(3.) Where the parties purport to effect a present sale of future goods, the agreement operates as a contract to sell the goods.

This section follows Section 5 of the English Act except that contract to sell is here as elsewhere substituted for "contract of sale" and "contract for the sale." Also in sub-section (3) "parties purport" is substituted for "seller purports." As the intention of the buyer is as important as that of the seller, the substituted expression is the more accurate.

SECTION 6.—[UNDIVIDED SHARES.] (1.) There may be a contract to sell or a sale of an undivided share of goods. If the parties intend to effect a present sale, the buyer, by force of the agreement, becomes an owner in common with the owner or owners of the remaining shares.

(2.) In the case of fungible goods, there may be a sale of an undivided share of a specific mass, though the seller purports to sell and the buyer to buy a definite number, weight, or measure of the goods in the mass, and though the number, weight, or measure of the goods in the mass is undetermined. By such a sale the buyer becomes owner in common of such a share of the mass as the number, weight, or measure bought bears to the number, weight, or measure of the mass. If the mass contains less than the number, weight, or measure bought, the buyer becomes the owner of the whole mass and the seller is bound to make good the deficiency from similar goods unless a contrary intent appears.

These provisions are new, and 6 (2) at least probably does not express the English law. It expresses the doctrine of Kimberly Patchin, 19 N. Y. 330, which is supported by the weight of recent American authority, though there are adverse decisions. See Mechem, § 704, *et seq.* It is to be noticed that it is provided only that title may pass under the suggested circumstances. The presumption would in most cases be that it did not pass because not intended to pass until separation. See Section 19.

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SECTION 7.—[DESTRUCTION OF GOODS SOLD.] (1.) Where the parties purport to sell specific goods, and the goods without the knowledge of the seller have wholly perished at the time when the agreement is made, the agreement is void.

(2.) Where the parties purport to sell specific goods, and the goods without the knowledge of the seller have perished in part or have wholly or in a material part so deteriorated in quality as to be substantially changed in character, the buyer may at his option treat the sale—

(a.) As avoided, or

(b.) As transferring the property in all of the existing goods or in so much thereof as have not deteriorated, and as binding the buyer to pay the full agreed price if the sale was indivisible or to pay the agreed price for the goods in which the property passes if the sale was divisible.

Sub-section (1) corresponds to Section 6 of the English Act. The English section does not seem to cover the contingency of deterioration or partial destruction and sub-section (2) has been added for that purpose. The section is believed to express the existing law.

SECTION 8.—[DESTRUCTION OF GOODS CONTRACTED TO BE SOLD.] (1.) Where there is a contract to sell specific goods, and subsequently, but before the risk passes to the buyer, without any fault on the part of the seller or the buyer, the goods wholly perish, the contract is thereby avoided.

(2.) Where there is a contract to sell specific goods, and subsequently, but before the risk passes to the buyer, without any fault of the seller or the buyer, part of the goods perish or the whole or a material part of the goods so deteriorate in quality as to be substantially changed in character, the buyer may at his option treat the contract—

(a.) As avoided, or

(b.) As binding the seller to transfer the property in all of the existing goods or in so much thereof as have not deteriorated, and as binding the buyer to pay the full agreed price if the contract was indivisible, or to pay the agreed price for so much of the goods as the seller, by the buyer's option, is bound to transfer if the contract was divisible.

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Sub-section (1) corresponds to section 7 of the English Act. Sub-section (2) is added to cover the case of deterioration or partial destruction. The section is believed to express the existing law.

THE PRICE.

SECTION 9.—[DEFINITION AND ASCERTAINMENT OF PRICE.] (1.) The price may be fixed by the contract, or may be left to be fixed in such manner as may be agreed, or it may be determined by the course of dealing between the parties.

(2.) The price may be made payable in any personal property.

(3.) Where transferring or promising to transfer any interest in real estate constitutes the whole or part of the consideration for transferring or for promising to transfer the property in goods, this act shall not apply.

(4.) Where the price is not determined in accordance with the foregoing provisions the buyer must pay a reasonable price. What is a reasonable price is a question of fact dependent on the circumstances of each particular case.

Sub-sections (1) and (4) are substantially the same as Section 8 of the English Act. Sub-section (2) is changed from the English law which in Section 1 (1) requires a "money consideration." The common definition of sale also requires the price to be in money. This definition is copied from the Roman Law. In that law different rules of law were applicable to contracts of sale and of barter. This is not true in our law. Even the Statute of Frauds, where the word "sale" is used has been held applicable to contracts of barter. Browne, Stat. Frauds, § 293. As the rules of law applicable to barter are the same as those applicable to sale, it seemed desirable to bring cases of barter within the meaning of sale in this draft. On the other hand, different principles are often applicable where a bargain concerns real estate and such cases are, therefore, expressly excluded by sub-section (3).

SECTION 10.—[SALE AT A VALUATION.] (1.) Where there is a contract to sell or a sale of goods at a price or on terms to be fixed by a third person, and such third person, without fault of the seller or the buyer, can not or does not fix the price or terms, the contract or the sale is thereby avoided; but if the goods or any part thereof have been delivered to and appropriated by the buyer he must pay a reasonable price therefor.

(2.) Where such third person is prevented from fixing the price or terms by fault of the seller or the buyer, the party not in fault

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may have such remedies against the party in fault as are allowed by Parts IV and V of this act.

Slightly varied from Section 9 of the English Act.

CONDITIONS AND WARRANTIES.

SECTION 11.—[EFFECT OF CONDITIONS.] (1.) Where the obligation of either party to a contract to sell or a sale is subject to any condition which is not performed, such party may refuse to proceed with the contract or sale or he may waive performance of the condition. If the other party has promised that the condition should happen or be performed, such first-mentioned party may also treat the non-performance of the condition as a breach of warranty.

(2.) Where the property in the goods has not passed, the buyer may treat the fulfillment by the seller of his obligation to furnish goods as described and as warranted expressly or by implication in the contract to sell as a condition of the obligation of the buyer to perform his promise to accept and pay for the goods.

Section 11 of the English Act authorizes not only the waiver of a condition but the election to treat any condition to be fulfilled by the seller as a breach of warranty. The use of condition as including promise or warranty does not seem happy. Chalmers (5th ed.), p. 174, says, "In conveyancing a distinction was drawn between conditions and covenants, which in contracts has now become obliterated." It is very unfortunate if the distinction should become obliterated, for the legal ideas are distinct and should have distinct names. Doubtless the performance of promises in many cases operates as a condition, but all promises are not conditions, and still more emphatically all conditions are not promises.

SECTION 12.—[DEFINITION OF EXPRESS WARRANTY.] Any affirmation of fact or any promise by the seller relating to the goods is an express warranty if the natural tendency of such affirmation or promise is to induce the buyer to purchase the goods, and if the buyer purchases the goods relying thereon. No affirmation of the value of the goods, nor any statement purporting to be a statement of the seller's opinion only shall be construed as a warranty.

The English Act does not define when language amounts to warranty. There is considerable division of authority on the point. The section as drawn is supported by Stroud *v.* Pierce, 6 Allen, 413, 416; Kenner *v.* Harding, 85 Ill. 264, 268; Ormsby *v.* Budd, 72 Ia. 80; McClintock *v.* Enrick, 87 Ky. 160; Hawkins *v.* Pemberton, 51 N. Y. 198; Fairbanks Co. *v.* Metzger, 118 N. Y. 260; Hobart *v.* Young, 63 Vt. 363; Herron *v.* Debbrell, 87 Va. 289.

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Many authorities, however, require further that the seller shall have intended to warrant. See Mechem, § 1224, *et seq.* But this is believed to be unsound for both theoretical and practical reasons. On theory the fundamental basis for liability on warranty is the justifiable reliance on the seller's assertions. Whether the buyer was justified in his reliance depends not on the intent of the seller, but on the natural tendency of his acts. As a practical matter, the section as drawn does not seem to set up an unreasonably high standard of morality. The tendency of the courts has been distinctly in the direction of greater strictness against seller's statements. See Mechem, page 1072, note 1.

SECTION 13.—[IMPLIED WARRANTIES OF TITLE.] In a contract to sell or a sale, unless a contrary intention appears, there is—

(1.) An implied warranty on the part of the seller that in the case of a sale he has a right to sell the goods, and that in the case of a contract to sell he will have a right to sell the goods at the time when the property is to pass.

(2.). An implied warranty that the buyers hall have and enjoy quiet possession of the goods as against any lawful claims existing at the time of sale.

(3.) An implied warranty that the goods shall be free at the time of the sale from any charge or encumbrance in favor of any third person, not declared or known to the buyer before or at the time when the contract or sale is made.

(4.) This section shall not, however, be held to render liable a sheriff, auctioneer, mortgagee, or other person professing to sell by virtue of authority in fact or law goods in which a third person has a legal or equitable interest.

This section is copied from the English Section 12, except (4) which is an addition. There are a few American decisions and more dicta that there is no warranty of title where the vendor is out of possession. But the weight of recent authority is against this distinction. See Mechem, § 1302. (4) represents the English as well as the American law, and it seemed best to make an express provision.

SECTION 14.—[IMPLIED WARRANTY IN SALE BY DESCRIPTION.] Where there is a contract to sell or a sale of goods by description, there is an implied warranty that the goods shall correspond with the description and if the contract or sale be by sample, as well as by description, it is not sufficient that the bulk of the goods corresponds with the sample if the goods do not also correspond with the description.

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This section is identical in meaning with Section 13 of the English Act and identical in language except for the use of the words "contract to sell" and "sale" instead of the English words "contract for the sale" and "sale;" and the substitution of the word "warranty" for "condition," which is used in the English Act as including both condition proper and promise. The meaning of the word "condition" is restricted in this draft to condition proper. As breach of warranty justifies rejection of the goods, and also an action for damages under this draft, the full meaning of the English provision is retained.

SECTION 15.—[IMPLIED WARRANTIES OF QUALITY.] Subject to the provisions of this act and of any statute in that behalf, there is no implied warranty or condition as to the quality or fitness for any particular purpose of goods supplied under a contract to sell or a sale, except as follows:

(1.) Where the buyer, expressly or by implication, makes known to the seller the particular purpose for which the goods are required, and it appears that the buyer relies on the seller's skill or judgment (whether he be the grower or manufacturer or not), there is an implied warranty that the goods shall be reasonably fit for such purpose.

(2.) Where the goods are bought by description from a seller who deals in goods of that description (whether he be the grower or manufacturer or not), there is an implied warranty that the goods shall be of merchantable quality.

(3.) If the buyer has examined the goods, there is no implied warranty as regards defects which such examination ought to have revealed.

(4.) In the case of a contract to sell or a sale of a specified article under its patent or other trade name, there is no implied warranty as to its fitness for any particular purpose.

(5.) An implied warranty or condition as to quality or fitness for a particular purpose may be annexed by the usage of trade.

(6.) An express warranty or condition does not negative a warranty or condition implied under this act unless inconsistent therewith.

This section follows Section 14 of the English Act. As originally drafted Subsection (1) was limited to the case where the seller was the grower or manufacturer, in conformity with the probable weight of authority. See Mechem, §§ 1314-1318. The rule in New York is still more restricted, and does not hold even a grower or manufacturer liable if the defect was due to latent defects in the material purchased and there was no negligence. Hoe *v.* Sanborn, 21 N.

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Y. 552. See also California Code, § 1769. (See contra Randall *v.* Newson, 2 Q. B. D. 102; Rodgers *v.* Niles, 11 Ohio st., 48, 56; Leopold *v.* Van Kirk, 27 Wis. 152.) The tendency of recent decisions, however, has been strongly in the direction of extending the doctrines of implied warranty, and it was thought best in fixing the law in statutory form to follow exactly the English model.

SALE BY SAMPLE.

SECTION 16.—[IMPLIED WARRANTIES IN SALE BY SAMPLE.] In the case of a contract to sell or a sale by sample—

(a.) There is an implied warranty that the bulk shall correspond with the sample in quality.

(b.) There is an implied warranty that the buyer shall have a reasonable opportunity of comparing the bulk with the sample, except so far as otherwise provided in section 47 (3).

(c.) If the seller is a dealer in goods of that kind, there is an implied warranty that the goods shall be free from any defect, rendering them unmerchantable, which would not be apparent on reasonable examination of the sample.

This follows substantially Section 15 of the English Act.

PART II.

TRANSFER OF PROPORTY AS BETWEEN SELLER AND BUYER.

SECTION 17.—[NO PROPERTY PASSES UNTIL GOODS ARE ASCERTAINED.] Where there is a contract to sell unascertained goods no property in the goods is transferred to the buyer unless and until the goods are ascertained, but property in an undivided share of ascertained goods may be transferred as provided in section 6.

This section follows Section 16 of the English Act except for the addition of the clause beginning "but," etc. See under section 6 for explanation of the difference between English and American law on the point referred to.

SECTION 18.—[PROPERTY IN SPECIFIC GOODS PASSES WHEN PARTIES SO INTEND.] (1.) Where there is a contract to sell specific or ascertained goods, the property in them is transferred to the buyer at such time as the parties to the contract intend it to be transferred.

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(2.) For the purpose of ascertaining the intention of the parties, regard shall be had to the terms of the contract, the conduct of the parties, usages of trade, and the circumstances of the case.

Follows Section 17 of the English Act.

SECTION 19.—[RULES FOR ASCERTAINING INTENTION.] Unless a different intention appears, the following are rules for ascertaining the intention of the parties as to the time at which the property in the goods is to pass to the buyer:

Rule 1.—Where there is an unconditional contract to sell specific goods, in a deliverable state, the property in the goods passes to the buyer when the contract is made, and it is immaterial whether the time of payment, or the time of delivery, or both, be postponed.

Rule 2.—Where there is a contract to sell specific goods and the seller is bound to do something to the goods, for the purpose of putting them into a deliverable state, the property does not pass until such thing be done.

Rule 3.—(1.) When goods are delivered to the buyer "on sale or return," or on other terms indicating an intention to make a present sale, but to give the buyer an option to return the goods instead of paying the price, the property passes to the buyer on delivery, but he may revest the property in the seller by returning or tendering the goods within the time fixed in the contract, or, if no time has been fixed, within a reasonable time.

(2.) When goods are delivered to the buyer on approval or on trial or on satisfaction, or other similar terms, the property therein passes to the buyer—

(a.) When he signifies his approval or acceptance to the seller or does any other act adopting the transaction.

(b.) If he does not signify this approval or acceptance to the seller, but retains the goods without giving notice of rejection, then, if a time has been fixed for the return of the goods, on the expiration of such time, and, if no time has been fixed, on the expiration of a reasonable time. When is a reasonable time is a question of fact.

Rule 4.—(1.) Where there is a contract to sell unascertained or future goods by description, and goods of that description and in a deliverable state are unconditionally appropriated to the contract, either by the seller with the assent of the buyer, or by the buyer with the assent of the seller, the property in the goods thereupon

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passes to the buyer. Such assent may be expressed or implied, and may be given either before or after the appropriation is made.

(2.) Where, in pursuance of a contract to sell, the seller delivers the goods to the buyer, or to a carrier or other bailee (whether named by the buyer or not) for the purpose of transmission to or holding for the buyer, he is presumed to have unconditionally appropriated the goods to the contract, except in the cases provided for in the next rule and in section 20. This presumption is applicable, although by the terms of the contract the buyer is to pay the price before receiving delivery of the goods, and the goods are marked with the words Collect on Delivery or their equivalents.

Rule 5.—If a contract to sell requires the seller to deliver the goods to the buyer, or at a particular place, or to pay the freight or cost of transportation to the buyer, or to a particular place, the property does not pass until the goods have been delivered to the buyer or reached the place agreed upon.

This section follows Section 18 of the English Act with some changes. The first rule is altered by omitting from the end the words "and the buyer has notice thereof." The insertion of these words in the English Act changed the English law, which had never required notice (see Chalmers, p. 46), in order to make it conform to the Scotch law. There seems no good reason for postponing the transfer of title to this extent. There is no American authority for it.

The English Rule 3 which is omitted is as follows:

"Where there is a contract for the sale of specific goods in a deliverable state, but the seller is bound to weigh, measure, test, or do some other act or thing with reference to the goods for the purpose of ascertaining the price, the property does not pass until such act or thing be done."

This rule, however, is based on decisions which followed a rule of the Roman Law. In the Roman Law the rule was based on a special reason that never existed in the Common Law. Blackburn on Sales, 175. Moreover, the rule was originally laid down in the English law, as it is in the Civil Law, as an absolute rule not a rule of presumption to ascertain intention, as it has become in modern English law. As a rule of presumption it is artificial and has been discarded in New York and some other states. See Mechem, § 515, *et seq.* It was, therefore, deemed wise to omit it.

Rule 3 (1) is not in the English Act. In that Act, a "sale or return" is included in the provision corresponding to Rule 3 (2) of this draft (Section 18, Rule 4 of English Act), thereby making the same presumption apply to such sales as to sales on trial. The distinction between a sale with a right to return and a sale to take effect on approval has not been taken in the English decisions, though Chalmers notices it in his annotation. 9 Harv. L. Rev. 110, n. 3. The distinction

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has been taken in this country (Mechem, § 657, *et seq*, § 675 *et seq*), and it seems proper to indicate it in this draft.

Rule 3 (2) is the same as Rule 4 of the English Act, except that the words "on trial or on satisfaction" are substituted for "on sale or return."

In rule 4 (2) the last sentence is not the English Act. It settles a disputed question in accordance with the weight of authority. See 4 Columbia L. Rev. 541. Mechem, §§ 733, 741.

Rule 5 is not in the English Act, but it represents the existing law.

SECTION 20.—[RESERVATION OF RIGHT OF POSSESSION OR PROPERTY WHEN GOODS ARE SHIPPED.] (1.) Where there is a contract to sell specific goods, or where goods are subsequently appropriated to the contract, the seller may, by the terms of the contract or appropriation, reserve the right of possession or property in the goods until certain conditions have been fulfilled. The right of possession or property may be thus reserved notwithstanding the delivery of the goods to the buyer, or to a carrier or other bailee for the purpose of transmission to the buyer.

(2.) Where goods are shipped, and by the bill of lading the goods are deliverable to the seller or his agent, or to the order of the seller or of his agent, the seller thereby reserves the property in the goods. But if, except for the form of the bill of lading, the property would have passed to the buyer on shipment of the goods, the seller's property in the goods shall be deemed to be only for the purpose of securing performance by the buyer of his obligations under the contract.

(3.) Where goods are shipped, and by the bill of lading the goods are deliverable to the order of the buyer or of his agent, but possession of the bill of lading is retained by the seller or his agent, the seller thereby reserves a right to the possession of the goods, as against the buyer.

(4.) Where the seller of goods draws on the buyer for the price and transmits the bill of exchange and bill of lading together to the buyer to secure acceptance or payment of the bill of exchange, the buyer is bound to return the bill of lading if he does not honor the bill of exchange, and if he wrongfully retains the bill of lading he acquires no added right thereby. If, however the bill of lading provides that the goods are deliverable to the buyer or to the order of the buyer, or is endorsed in blank, or to the buyer by the consignee named therein, one who purchases in good faith, for value,

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the bill of lading, or goods from the buyer will obtain the property in the goods, although the bill of exchange has not been honored, provided that such purchaser has received delivery of the bill of lading indorsed by the consignee named therein, or of the goods, without notice of the facts making the transfer wrongful.

Sub-section (1) follows with some change of expression, Section 19 of the English Act except that for the somewhat loose phrase "right of disposal" is substituted "possession or property." The phrase *jus disponendi* has gained some currency as the expression of the right of a seller who has definitely appropriated goods to a contract but who nevertheless takes a bill of lading to his own order. The truth is he has reserved the property as security. The situation is similar to that in a conditional sale.

The first sentence of sub-section (2) is in the English Act, except that "property in the goods" is substituted for "right of disposal." The remainder of the subsection is new.

Sub-section (3) is not in the English Act, but is thought to be warranted by the existing law.

Sub-section (4) substantially follows the English Act as far as the words "If, however." The proviso beginning "If, however," is not in the English Act. It expresses, nevertheless, the English law, because of the last factors' act. Cahn *v.* Packet Co. (1899), 1 Q. B. 643. It undoubtedly is in accordance with mercantile understanding and convenience. The seller has trusted the buyer with the possession of the document of title and should bear the consequences. See Mechem, § 166.

SECTION 21.—[SALE BY AUCTION.] In the case of a sale by auction—

(1.) Where goods are put up for sale by auction in lots, each lot is the subject of a separate contract of sale.

(2.) A sale by auction is complete when the auctioneer announces its completion by the fall of the hammer, or in other customary manner. Until such announcement is made any bidder may retract his bid; and the auctioneer may withdraw the goods from sale unless the auction has been announced to be without reserve.

(3.) A right to bid may be reserved expressly by or on behalf of the seller.

(4.) Where notice has not been given that a sale by auction is subject to a right to bid on behalf of the seller, it shall not be lawful for the seller to bid himself or to employ or induce any person to bid at such sale on his behalf, or for the auctioneer to employ or induce any person to bid at such sale on behalf of the seller or knowingly to take any bid from the seller or any person employed by him.

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Any sale contravening this rule may be treated as fraudulent by the buyer.

This follows Section 58 of the English Act, and is believed to express the existing law.

SECTION 22.—[RISK OF LOSS.] Unless otherwise agreed, the goods remain at the seller's risk until the property therein is transferred to the buyer, but when the property therein is transferred to the buyer the goods are at the buyer's risk whether delivery has been made or not, except that—

(a.) Where delivery of the goods has been made to the buyer, or to a bailee for the buyer, in pursuance of the contract and the property in the goods has been retained by the seller merely to secure performance by the buyer of his obligations under the contract, the goods are at the buyer's risk from the time of such delivery.

(b.) Where delivery has been delayed through the fault of either buyer or seller the goods are at the risk of the party in fault as regards any loss which might not have occurred but for such fault.

The exception (a) is not contained in the English Act. Otherwise the section is in substance the same as Section 20 of the English Act. The new exception represents the weight of authority and seems sound on principle. The principal situation at which it is aimed is where a conditional sale has been made, the goods delivered to the buyer, and very likely in use by him. The title is retained instead of taking a mortgage back as would be done in the case of real estate. The beneficial interest is in the buyer, and the risk should be on him. See 9 Harv. L. Rev. 109; Mechem, § 635.

Where goods are sent in compliance with an order, but marked "C. O. D.," even though the effect of this were to withhold the title (as to which, however, see Section 19, Rule 4 (2) the risk would be thrown on the buyer. See Mechem, § 840 note (p. 616).

TRANSFER OF TITLE.

SECTION 23.—[SALE BY A PERSON NOT THE OWNER.] (1.) Subject to the provisions of this act, where goods are sold by a person who is not the owner thereof, and who does not sell them under the authority or with the consent of the owner, the buyer acquires no better title to the goods than the seller had, unless the owner of the goods is by his conduct precluded from denying the seller's authority to sell.

(2.) Nothing in this act, however, shall affect—

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(a.) The provisions of any factors' acts, recording acts, or any enactment enabling the apparent owner of goods to dispose of them as if he were the true owner thereof.

(b.) The validity of any contract to sell or sale under any special common-law or statutory power of sale or under the order of a court of competent jurisdiction.

This follows Section 21 of the English Act, except in (2) (a) "recording acts" has been added.

SECTION 24.—[SALE BY ONE HAVING A VOIDABLE TITLE.] Where the seller of goods has a voidable title thereto, but his title has not been avoided at the time of the sale, the buyer acquires a good title to the goods, provided he buys them in good faith, for value, and without notice of the seller's defect of title.

This follows Section 23 of the English Act. Section 22 of that Act relates to sales in market overt and is omitted here.

SECTION 25.—[SALE BY SELLER IN POSSESSION OF GOODS ALREADY SOLD.] Where a person having sold goods continues in possession of the goods, or of negotiable documents of title to the goods, the delivery or transfer by that person, or by an agent acting for him, of the goods or documents of title under any sale, pledge, or other disposition thereof, to any person receiving and paying value for the same in good faith and without notice of the previous sale, shall have the same effect as if the person making the delivery or transfer were expressly authorized by the owner of the goods to make the same.

This follows Section 25 (1) of the English Act. It is comparatively new to the English Law being first enacted in the Factor's Act of 1889. But, so far as purchasers are concerned, it states in effect the principle commonly laid down in this country, that delivery is not necessary between the parties, but is as against third persons. The rights of creditors are dealt with in the next section. Section 25 (2) of the English Act provides that a buyer in possession without title shall have power to transfer title. This is contrary to American law and has been omitted. Mechem, § 599.

SECTION 26.—[CREDITORS' RIGHTS AGAINST SOLD GOODS IN SELLER'S POSSESSION.] Where a person having sold goods continues in possession of the goods, or of negotiable documents of title to the

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goods, and such retention of possession is fraudulent in fact or is deemed fraudulent under any rule of law, a creditor or creditors of the seller may treat the sale as void.

The law in this country as to the effect of retention of possession on the rights of creditors is in such conflict and the different rules are locally so firmly fixed, that it seemed unwise to try to provide a uniform rule. All states, however, agree that if the retention is fraudulent in fact, the sale is void as to creditors. The draft, therefore, so provides, and as to other cases—cases of constructive fraud—adopts the locally prevailing rule.

SECTION 27.—[DEFINITION OF NEGOTIABLE DOCUMENT OF TITLE.] A document of title in which it is stated that the goods referred to therein will be de ivered to the bearer, or to the order of any person named in such document, is a negotiable document of title.

This definition, following as it does the definition of negotiable promises to pay money, represents the mercantile understanding in regard to documents of title.

SECTION 28.—[NEGOTIATION OF NEGOTIABLE DOCUMENTS BY DELIVERY.] A negotiable document of title may be negotiated by delivery—

(a.) Where by the terms of the document the carrier, warehouseman, or other bailee issuing the same undertakes to deliver the goods to the bearer, or

(b.) Where by the terms of the document the carrier, warehouseman, or other bailee issuing the same undertakes to deliver the goods to the order of a specified person, and such person or a subsequent indorsee of the document has indorsed it in blank or to bearer.

Where by the terms of a negotiable document of title the goods are deliverable to bearer or where a negotiable document of title has been indorsed in blank or to bearer, any holder may indorse the same to himself or to any other specified person, and in such case the document shall thereafter be negotiated only by the indorsement of such indorsee.

Here too both mercantile practice and the analogy of bills and notes are followed.

SECTION 29.—[NEGOTIATION OF NEGOTIABLE DOCUMENTS BY INDORSEMENT.] A negotiable document of title may be negotiated

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by the indorsement of the person to whose order the goods are by the terms of the document deliverable. Such indorsement may be in blank, to bearer, or to a specified person. If indorsed to a specified person it may be again negotiated by the indorsement of such person in blank, to bearer or to another specified person. Subsequent negotiation may be made in like manner.

The note to the preceding section is again applicable.

SECTION 30.—[NEGOTIABLE DOCUMENTS OF TITLE MARKED "NOT NEGOTIABLE."] If a document of title which contains an undertaking by a carrier, warehouseman, or other bailee to deliver the goods to the bearer, to a specified person or order, or to the order of a specified person, or which contains words of like import, has placed upon it the words "not negotiable," "non-negotiable," or the like, such a document may nevertheless be negotiated by the holder and is a negotiable document of title within the meaning of this act. But nothing in this act contained shall be construed as limiting or defining the effect upon the obligations of the carrier, warehouseman, or other bailee issuing a document of title of placing thereon the words "not negotiable" "non-negotiable," or the like.

It is a well-known custom of the railroads to stamp upon bills of lading, even though running to order or assigns, the words "Not Negotiable." The object of carriers in so doing seems to be to limit their own liability, but not to interfere with the transfer of the bills between buyer and seller or with the practice of the banks to advance money on such bills. How far the carrier is justified in attempting to limit its liability by such a device may be questioned, but as this act is concerned, not with the liability of the carrier, but with the rights of the various holders of the bill of lading as against each other, it seemed wise to provide merely that as between those parties the words "Not Negotiable" do not change the legal effect of the document.

SECTION 31.—[TRANSFER OF NON-NEGOTIABLE DOCUMENTS.] A document of title which is not in such form that it can be negotiated by delivery may be transferred by the holder by delivery to a purchaser or donee. A non-negotiable receipt can not be negotiated and the indorsement of such a receipt gives the transferee no additional right.

The distinction between warehouse receipts and bills of lading negotiable in form and those which are not does not seem to be observed in the English de-

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cisions; but it is observed in this country both in the usages of warehousemen and carriers and in the decisions of the courts. See Hallgarten *v.* Oldham, 135 Mass. 1; Gill *v.* Frank, 12 Oreg. 507; Forbes *v.* Boston & Lowell R. R., 133 Mass. 154; Litchfield Bank *v.* Elliott, 83 Minn. 469.

SECTION 32.—[WHO MAY NEGOTIATE A DOCUMENT.] A negotiable document of title may be negotiated—

(a.) By the owner thereof, or

(b.) By any person to whom the possession or custody of the document has been entrusted by the owner, if, by the terms of the document, the bailee issuing the document undertakes to deliver the goods to the order of the person to whom the possession or custody of the document has been entrusted, or if at the time of such entrusting the document is in such form that it may be negotiated by delivery.

By this section a negotiable document of title is not given the full negotiability of a bill of exchange inasmuch as neither a thief nor a finder is within the terms of the section. Any person entrusted with a document running to bearer or indorsed in blank, irrespective of the terms of the trust is intended to be given the power of negotiating. While the true owner may claim protection against the theft or accidental loss, if he has voluntarily given such paper to a servant or agent he should bear the loss in case of a wrongful disposition of the document by the servant or agent, rather than a *bona fide* purchaser.

SECTION 33.—[RIGHTS OF PERSON TO WHOM DOCUMENT HAS BEEN NEGOTIATED.] A person to whom a negotiable document of title has been duly negotiated acquires thereby,

(a.) Such title to the goods as the person negotiating the document to him had or had ability to convey to a purchaser in good faith for value, and also such title to the goods as the person to whose order the goods were to be delivered by the terms of the document had or had ability to convey to a purchaser in good faith for value, and

(b.) The direct obligation of the bailee issuing the document to hold possession of the goods for him according to the terms of the document as fully as if such bailee had contracted directly with him.

This section follows the custom of merchants. It makes the document represent the depositor's right in the goods, so that a purchaser of the document, if he acquires a good title thereto, acquires not simply the rights of his vendor, but whatever property the original depositor had, that being what the document represented. 32 (b) makes the obligation of the warehouseman in regard to the goods negotiable.

Many states already have statutes making warehouse receipts negotiable.

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Mohun on Warehousemen, 944; and some states have statutes in regard to bills of lading, ibid. 848, but these statutes have generally been so brief and general in terms that they have been variously construed and have to some extent failed of their purpose. See Shaw *v.* Railroad Co., 101 U. S. 557.

This section and the preceding are of fundamental importance to merchants and bankers. They state familiar law in regard to bills and notes and there is authority for them both in the statutes making warehouse receipts and bills of lading negotiable, and also in common law decisions. Pollard *v.* Reardon, 65 Fed. Rep. 848 (C. C. A.); Munroe *v.* Phila. Warehouse Co., 75 Fed. Rep. 545. See also Commercial Bank *v.* Armsby Co., 120 Ga. 74. But the language at least of other cases would seem to indicate the theory that the form of a document of title, though negotiable, is only evidence of intention and that other evidence is admissible to show intention to transfer or retain title even as against innocent third persons. See The Carlos F. Roses, 177 U. S. 655, 665; Washburn Crosby Co. *v.* Boston & Albany R. R. Co., 180 Mass. 252, 257; Neimeyer Lumber Co. *v.* Burlington & Mo. R. Co., 54 Neb. 321.

SECTION 34.—[RIGHTS OF PERSON TO WHOM DOCUMENT HAS BEEN TRANSFERRED.] A person to whom a document of title has been transferred, but not negotiated, acquires thereby, as against the transferor, the title to the goods, subject to the terms of any agreement with the transferor.

If the document is non-negotiable such person also acquires the right to notify the bailee who issued the document of the transfer thereof, and thereby to acquire the direct obligation of such bailee to hold possession of the goods for him according to the terms of the document.

Prior to the notification of such bailee by the transferor or transferee of a non-negotiable document of title, the title of the transferee to the goods and the right to acquire the obligation of such bailee may be defeated by the levy of an attachment or execution upon the goods by a creditor of the transferor, or by a notification to such bailee by the transferor or a subsequent purchaser from the transferor of a subsequent sale of the goods by the transferor.

This section states the right of any purchaser of bailed goods. One who purchases, therefore, a non-negotiable document of title would gain nothing from the transfer of the document except evidence.

SECTION 35.—[TRANSFER OF NEGOTIABLE DOCUMENT WITHOUT INDORSEMENT.] Where a negotiable document of title is transferred for value by delivery, and the indorsement of the transferor is essential for negotiation, the transferee acquires a right against the

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transferor to compel him to indorse the document unless a contrary intention appears. The negotiation shall take effect as of the time when the indorsement is actually made.

This follows the analogy of bills and notes, Crawford, Neg. Inst. Law, § 79.

SECTION 36.—[WARRANTIES ON SALE OF DOCUMENT.] A person who for value negotiates or transfers a document of title by indorsement or delivery, including one who assigns for value a claim secured by a document of title, unless a contrary intention appears, warrants:

(a.) That the document is genuine.

(b.) That he has a legal right to negotiate or transfer it.

(c.) That he has knowledge of no fact which would impair the validity or worth of the document, and

(d.) That he has a right to transfer the title to the goods and that the goods are merchantable or fit for a particular purpose, whenever such warranties would have been implied if the contract of the parties had been to transfer without a document of title the goods represented thereby.

This section except (d) follows the Negotiable Instruments Law, Crawford, § 115. (d) it is believed, states the existing law.

SECTION 37.—[INDORSER NOT A GUARANTOR.] The indorsement of a document of title shall not make the indorser liable for any failure on the part of the bailee who issued the document or previous indorsers thereof to fulfill their respective obligations.

Mercantile usage in regard to documents of title differs from that in regard to bills and notes in the matter to which this section relates. It states the existing law, even in jurisdictions where statutes have made documents of title negotiable. Shaw *v.* Railroad Co., 101 U. S. 557; Mida *v.* Geissmann, 17 Ill. App. 207.

SECTION 38.—[WHEN NEGOTIATION NOT IMPAIRED BY FRAUD, MISTAKE, OR DURESS.] The validity of the negotiation of a negotiable document of title is not impaired by the fact that the negotiation was a breach of duty on the part of the person making the negotiation, or by the fact that the owner of the document was induced by fraud, mistake, or duress to entrust the possession or custody thereof to such person, if the person to whom the document was negotiated or a person to whom the document was subsequently negotiated paid

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value therefor, without notice of the breach of duty, or fraud, mistake, or duress.

This section merely elaborates for the sake of clearness certain special cases within the terms of section 32.

SECTION 39.—[ATTACHMENT OR LEVY UPON GOODS FOR WHICH A NEGOTIABLE DOCUMENT HAS BEEN ISSUED.] If goods are delivered to a bailee by the owner or by a person whose act in conveying the title to them to a purchaser in good faith for value would bind the owner and a negotiable document of title is issued for them they can not thereafter, while in the possession of such bailee, be attached by garnishment or otherwise or be levied upon under an execution unless the document be first surrendered to the bailee or its negotiation enjoined. The bailee shall in no case be compelled to deliver up the actual possession of the goods until the document is surrendered to him or impounded by the court.

If the mercantile theory of documents of title, such as bills of lading and warehouse receipts, were carried to its logical extent, no attachment of the goods represented by the document or levy upon them could be permitted while the negotiable document was outstanding. For the mercantile theory is founded upon the idea that a negotiable document of title represents the goods and may be safely dealt with on that assumption. For one and the same reason it is not admissible for the bailee to deliver the goods without taking up an outstanding negotiable receipt for them, and for the law to allow attachment or levy upon the goods, regardless of outstanding negotiable documents. For a similar reason the maker of negotiable notes is protected by garnishment: in most states by absolutely disallowing such garnishment and in other states by making any garnishment subject to the rights of even a subsequent purchaser for value before maturity of the paper. Likewise by statute in some states an attachment of stock is postponed to a subsequent purchaser of the stock certificate. Clews *v.* Friedman, 180 Mass. 55. So in the case of carriers, some protection against garnishment has been given. In most states, if the goods are actually in transit the carrier can not be garnished, 14 Am. & Eng. Encyc. of Law, 810. A transfer of the bill of lading prevails over a subsequent attachment, Mather *v.* Gordon, 59 At. Rep. 424 (Conn.); Robert C. White Co. *v.* Chicago & C. R. Co., 87 Mo. App. 330; Union Bank *v.* Rowan, 23 S. C. 339; and in Peters *v.* Elliott, 78 Ill. 321, it was held that an attaching creditor of a consignor was postponed to one who bought the bill of lading subsequently.

It was thought best in this draft not to take the extreme position that no attachment, garnishment or levy, could be made on property for which a negotiable document was outstanding, but to cover the essential practical point by making it a condition of the validity of such seizure that the negotiation of the document be enjoined or the document impounded. The following section expressly gives

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the court full power to aid, by injunction and otherwise, a creditor seeking to get a negotiable document and the property covered thereby.

SECTION 40.—[CREDITOR'S REMEDIES TO REACH NEGOTIABLE DOCUMENTS.] A creditor whose debtor is the owner of a negotiable document of title shall be entitled to such aid from courts of appropriate jurisdiction by injunction and otherwise in attaching such document or in satisfying the claim by means thereof as is allowed at law or in equity in regard to property which can not readily be attached or levied upon by ordinary legal process.

As the right of legal garnishment of bailed property is limited by the preceding section, Section 40 gives the creditor such rights as are included under the heads of bills of equitable attachment or in aid of execution.

PART III.

PERFORMANCE OF THE CONTRACT.

SECTION 41.—[SELLER MUST DELIVER AND BUYER ACCEPT GOODS.] It is the duty of the seller to deliver the goods, and of the buyer to accept and pay for them, in accordance with the terms of the contract to sell or sale.

This follows Section 26 of the English Act.

SECTION 42.—[DELIVERY AND PAYMENT ARE CONCURRENT CONDITIONS.] Unless otherwise agreed, delivery of the goods and payment of the price are concurrent conditions, that is to say, the seller must be ready and willing to give possession of the goods to the buyer in exchange for the price, and the buyer must be ready and willing to pay the price in exchange for possession of the goods.

This follows Section 27 of the English Act.

SECTION 43.—[PLACE, TIME, AND MANNER OF DELIVERY.] (1.) Whether it is for the buyer to take possession of the goods or for the seller to send them to the buyer, is a question depending in each case on the contract, express or implied, between the parties. Apart from any such contract, express or implied, or usage of trade to the

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contrary, the place of delivery is the seller's place of business, if he have one, and if not his residence; but in case of a contract to sell or a sale of specific goods, which to the knowledge of the parties when the contract or the sale was made were in some other place, then that place is the place of delivery.

(2.) Where by a contract to sell or a sale the seller is bound to send the goods to the buyer, but no time for sending them is fixed, the seller is bound to send them within a reasonable time.

(3.) Where the goods at the time of sale are in the possession of a third person, the seller has not fulfilled his obligation to deliver to the buyer unless and until such third person acknowledges to the buyer that he holds the goods on the buyer's behalf; but as against all others than the seller the buyer shall be regarded as having received delivery from the time when such third person first has notice of the sale. Nothing in this section, however, shall affect the operation of the issue or transfer of any document of title to goods.

(4.) Demand or tender of delivery may be treated as ineffectual unless made at a reasonable hour. What is a reasonable hour is a question of fact.

(5.) Unless otherwise agreed, the expenses of and incidental to putting the goods into a deliverable state must be borne by the seller.

This is the same as Section 29 of the English Act, except that the second half of sub-section (3) has been added. The section is believed to state the existing law.

SECTION 44.—[DELIVERY OF WRONG QUANTITY.] (1.) Where the seller delivers to the buyer a quantity of goods less than he contracted to sell, the buyer may reject them, but if the buyer accepts or retains the goods so delivered, knowing that the seller is not going to perform the contract in full, he must pay for them at the contract rate. If, however, the buyer has used or disposed of the goods delivered before he knows that the seller is not going to perform his contract in full, the buyer shall not be liable for more than the fair value to him of the goods so received.

(2.) Where the seller delivers to the buyer a quantity of goods larger than he contracted to sell, the buyer may accept the goods included in the contract and reject the rest, or he may reject the

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whole. If the buyer accepts the whole of the goods so delivered he must pay for them at the contract rate.

(3.) Where the seller delivers to the buyer the goods he contracted to sell mixed with goods of a different description not included in the contract, the buyer may accept the goods which are in accordance with the contract and reject the rest, or he may reject the whole.

(4.) The provisions of this section are subject to any usage of trade, special agreement, or course of dealing between the parties.

This follows Section 30 of the English Act, and is in accordance with the weight of authority. See Mechem, § 1157 *et seq.*

SECTION 45.—[DELIVERY IN INSTALMENTS.] (1.) Unless otherwise agreed, the buyer of goods is not bound to accept delivery thereof by instalments.

(2.) Where there is a contract to sell goods to be delivered by stated instalments, which are to be separately paid for, and the seller makes defective deliveries in respect of one or more instalments, or the buyer neglects or refuses to take delivery of or pay for one or more instalments, it depends in each case on the terms of the contract and the circumstances of the case, whether the breach of contract is so material as to justify the injured party in refusing to proceed further and suing for damages for breach of the entire contract, or whether the breach is severable, giving rise to a claim for compensation, but not to a right to treat the whole contract as broken.

This section is slightly altered from Section 31 of the English Act. The English Act, following prior English decisions, makes repudiation by one party the test of the right of the other to refuse to go on. The section here given makes the materiality of the breach the test. This is in accord with the weight of American authority. Norrington *v.* Wright, 115 U. S. 188; 14 Harv. L. Rev. 323.

SECTION 46.—[DELIVERY TO A CARRIER ON BEHALF OF THE BUYER.] (1.) Where, in pursuance of a contract to sell or a sale, the seller is authorized or required to send the goods to the buyer, delivery of the goods to a carrier, whether named by the buyer or not, for the purpose of transmission to the buyer is deemed to be a delivery of the goods to the buyer, except in the cases provided for in section 19, rule 5, or unless a contrary intent appears.

(2.) Unless otherwise authorized by the buyer, the seller must

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make such contract with the carrier on behalf of the buyer as may be reasonable, having regard to the nature of the goods and the other circumstances of the case. If the seller omit to do so, and the goods are lost or damaged in course of transit, the buyer may decline to treat the delivery to the carrier as a delivery to himself, or may hold the seller responsible in damages.

(3.) Unless otherwise agreed, where goods are sent by the seller to the buyer under circumstances in which the seller knows or ought to know that it is usual to insure, the seller must give such notice to the buyer as may enable him to insure them during their transit, and, if the seller fails to do so, the goods shall be deemed to be at his risk during such transit.

These paragraphs follow with slight changes Section 32 of the English Act. (1) is familiar law. (2) and (3) are probably in accordance with the business usage, but there is little in the way of positive law on the subject. See Chalmers (5th ed.), p. 73.

SECTION 47.—[RIGHT TO EXAMINE THE GOODS.] (1.) Where goods are delivered to the buyer, which he has not previously examined, he is not deemed to have accepted them unless and until he has had a reasonable opportunity of examining them for the purpose of ascertaining whether they are in conformity with the contract.

(2.) Unless otherwise agreed, when the seller tenders delivery of goods to the buyer, he is bound, on request, to afford the buyer a reasonable opportunity of examining the goods for the purpose of ascertaining whether they are in conformity with the contract.

(3.) Where goods are delivered to a carrier by the seller, in accordance with an order from or agreement with the buyer, upon the terms that the goods shall not be delivered by the carrier to the buyer until he has paid the price, whether such terms are indicated by marking the goods with the words Collect on Delivery, or otherwise, the buyer is not entitled to examine the goods before payment of the price in the absence of agreement permitting such examination.

Section 47 (1) and (2) follow Section 34 of the English Act, and state the American law also. Mechem, § 1375, *et seq.* Sub-section (3) is new. It states the actual practice of the large express companies and probably states the existing law. Wiltse *v.* Barnes, 46 Ia., 210.

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SECTION 48.—[WHAT CONSTITUTES ACCEPTANCE.] The buyer is deemed to have accepted the goods when he intimates to the seller that he has accepted them, or when the goods have been delivered to him, and he does any act in relation to them which is inconsistent with the ownership of the seller, or when, after the lapse of a reasonable time, he retains the goods without intimating to the seller that he has rejected them.

This follows Section 35 of the English Act, and represents the American law also. Mechem, § 1379 *et seq.*

SECTION 49.—[ACCEPTANCE DOES NOT BAR ACTION FOR DAMAGES.] In the absence of express or implied agreement of the parties, acceptance of the goods by the buyer shall not discharge the seller from liability in damages or other legal remedy for breach of any promise or warranty in the contract to sell or the sale. But, if, after acceptance of the goods, the buyer fail to give notice to the seller of the breach of any promise or warranty within a reasonable time after the buyer knows, or ought to know of such breach, the seller shall not be liable therefor.

This section is not contained in the English Act, but Section 11 (1) (a) of that Act seems to authorize the buyer to accept goods and nevertheless hold the seller liable in damages. The latter half of the section in this draft imposes a qualification sanctioned by good business practice and to some extent by law, both in this country and in Europe. The law in this country is in great conflict. See Mechem, § 1388 *et seq.*

SECTION 50.—[BUYER IS NOT BOUND TO RETURN GOODS WRONGLY DELIVERED.] Unless otherwise agreed, where goods are delivered to the buyer, and he refuses to accept them, having the right so to do, he is not bound to return them to the seller, but it is sufficient if he notifies the seller that he refuses to accept them.

This follows Section 36 of the English Act. Such American authority as there is, is in accord. Mechem, § 1403.

SECTION 51.—[BUYER'S LIABILITY FOR FAILING TO ACCEPT DELIVERY.] When the seller is ready and willing to deliver the goods, and requests the buyer to take delivery, and the buyer does not within a reasonable time after such request take delivery of the goods, he is liable to the seller for any loss occasioned by his neglect

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or refusal to take delivery, and also for a reasonable charge for the care and custody of the goods. If the neglect or refusal of the buyer to take delivery amounts to a repudiation or breach of the entire contract, the seller shall have the rights against the goods and on the contract hereinafter provided in favor of the seller when the buyer is in default.

This follows substantially Section 37 of the English Act, except for the addition of breach of the entire contract as an equivalent of repudiation. See note to Section 45.

PART IV.

RIGHTS OF UNPAID SELLER AGAINST THE GOODS.

SECTION 52.—[DEFINITION OF UNPAID SELLER.] (1.) The seller of goods is deemed to be an unpaid seller within the meaning of this act—

(a.) When the whole of the price has not been paid or tendered.

(b.) When a bill of exchange or other negotiable instrument has been received as conditional payment, and the condition on which it was received has been broken by reason of the dishonor of the instrument, the insolvency of the buyer, or otherwise.

(2.) In this part of this act the term "seller" includes an agent of the seller to whom the bill of lading has been endorsed, or a consignor or agent who has himself paid, or is directly responsible for, the price, or any other person who is in the position of a seller.

This follows Section 38 of the English Act, except that in (1) (b) "has been broken" is submitted for "has not been fulfilled" and "the insolvency of the buyer" has been inserted.

SECTION 53.—[REMEDIES OF AN UNPAID SELLER.] (1.) Subject to the provisions of this act, notwithstanding that the property in the goods may have passed to the buyer, the unpaid seller of goods, as such, has—

(a.) A lien on the goods or right to retain them for the price while he is in possession of them.

(b.) In case of the insolvency of the buyer, a right of stopping the

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goods in transitu after he has parted with the possession of them.

(c.) A right of resale as limited by this act.

(d.) A right to rescind the sale as limited by this act.

(2.) Where the property in goods has not passed to the buyer, the unpaid seller has, in addition to his other remedies, a right of withholding delivery similar to and co-extensive with his rights of lien and stoppage " in transitu " where the property has passed to buyer.

This follows Section 39 of the English Act, except for the insertion of 1 (d), which is in conformity with the American law and with business usage. Mechem, § 1682.

UNPAID SELLER'S LIEN.

SECTION 54.—[WHEN RIGHT OF LIEN MAY BE EXERCISED.] (1.) Subject to the provisions of this act, the unpiad seller of goods who is in possession of them is entitled to retain possession of them until payment or tender of the price in the following cases, namely:

(a.) Where the goods have been sold without any stipulation as to credit.

(b.) Where the goods have been sold on credit, but the term of credit has expired.

(c.) Where the buyer becomes insolvent.

(2.) The seller may exercise his right of lien notwithstanding that he is in possession of the goods as agent or bailee for the buyer.

This follows Section 41 of the English Act.

SECTION 55.—[LIEN AFTER PART DELIVERY.] Where an unpaid seller has made part delivery of the goods, he may exercise his right of lien on the remainder, unless such part delivery has been made under such circumstances as to show an intent to waive the lien or right of retention.

This follows Section 42 of the English Act.

SECTION 56.—[WHEN LIEN IS LOST.] (1.) The unpaid seller of goods loses his lien thereon—

(a.) When he delivers the goods to a carrier or other bailee for the purpose of transmission to the buyer without reserving the property in the goods or the right to the possession thereof.

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(b.) When the buyer or his agent lawfully obtains possession of the goods.

(c.) By waiver thereof.

(2.) The unpaid seller of goods, having a lien thereon, does not lose his lien by reason only that he has obtained judgment or decree for the price of the goods.

This substantially follows Section 43 of the English Act.

STOPPAGE IN TRANSITU.

SECTION 57.—[SELLER MAY STOP GOODS ON BUYER'S INSOLVENCY.] Subject to the provisions of this act, when the buyer of goods is or becomes insolvent, the unpaid seller who has parted with the possession of the goods has the right of stopping them in transitu, that is to say, he may resume possession of the goods at any time while they are in transit, and he will then become entitled to the same rights in regard to the goods as he would have had if he had never parted with the possession.

This follows Section 44 of the English Act with two exceptions. In the last clause the English Act reads, "and may retain them until payment or tender of the price." But the seller under such circumstances has also the right to resell, and under this draft the right to rescind the sale. In the second line the words "is or" have been inserted, so as to make it clear that the seller's right exists even though the buyer were insolvent at the time of the sale. In Rogers *v.* Thomas, 20 Conn. 54, it was said that there would be no right of stoppage unless the insolvency arose after the sale; but this case has been uniformly criticised and would probably not be followed even in Connecticut. Mechem § 1451.

SECTION 58.—[WHEN GOODS ARE IN TRANSIT.] (1.) Goods are in transit within the meaning of section 57:

(a.) From the time when they are delivered to a carrier by land or water, or other bailee for the purpose of transmission to the buyer, until the buyer, or his agent in that behalf, takes delivery of them from such carrier or other bailee;

(b.) If the goods are rejected by the buyer and the carrier or other bailee continues in possession of them, even if the seller has refused to receive them back.

(2.) Goods are no longer in transit within the meaning of section 57:

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(a.) If the buyer, or his agent in that behalf, obtains delivery of the goods before their arrival at the appointed destination;

(b.) If, after the arrival of the goods at the appointed destination, the carrier or other bailee acknowledges to the buyer or his agent, that he holds the goods on his behalf and continues in possession of them as bailee for the buyer, or his agent; and it is immaterial that a further destination for the goods may have been indicated by the buyer;

(c.) If the carrier or other bailee wrongfully refuses to deliver the goods to the buyer , or his agent in that behalf.

(3.) If goods are delivered to a ship chartered by the buyer, it is a question depending on the circumstances of the particular case, whether they are in the possession of the master as a carrier, or as agent of the buyer.

(4.) If part delivery of the goods has been made to the buyer, or his agent in that behalf, the remainder of the goods may be stopped in transitu, unless such part delivery has been made under such circumstances as to show an agreement with the buyer to give up possession of the whole of the goods.

This follows Section 45 of the English Act, but with considerable changes in wording and arrangement. The section is believed to state the existing law.

SECTION 59.—[WAYS OF EXERCISING THE RIGHT TO STOP.] (1.) The unpaid seller may exercise his right of stoppage in transitu either by obtaining actual possession of the goods, or by giving notice of his claim to the carrier or other bailee in whose possession the goods are. Such notice may be given either to the person in actual possession of the goods or to his principal. In the latter case the notice, to be effectual, must be given at such time and under such circumstances that the principal, by the exercise of reasonable diligence, may prevent a delivery to the buyer.

(2.) When notice of stoppage in transitu is given by the seller to the carrier, or other bailee in possession of the goods, he must redeliver the goods to, or according to the directions of, the seller. The expenses of such redelivery must be borne by the seller. If, however, a negotiable document of title representing the goods has been issued by the carrier or other bailee, he shall not be obliged to deliver or justified in delivering the goods to the seller unless such document is first surrendered for cancellation.

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This follows Section 46 of the English Act, except the final proviso. The carrier should be liable to a *bona fide* transferee of its bill of lading, and unquestionably would be at common law if the transferee took for value before the stoppage. Even though the transferee took after the notice of stoppage he is protected by Section 62. The carrier therefore ought not to be obliged or allowed to surrender the goods unless the document of title is surrendered.

RESALE BY THE SELLER.

SECTION 60.—[WHEN AND HOW RESALE MAY BE MADE.] (1.) Where the goods are of a perishable nature, or where the seller expressly reserves the right of resale in case the buyer should make default, or where the buyer has been in default in the payment of the price an unreasonable time, an unpaid seller having a right of lien or having stopped the goods in transitu may resell the goods. He shall not thereafter be liable to the original buyer upon the contract to sell or the sale or for any profit made by such resale, but may recover from the buyer damages for any loss occasioned by the breach of the contract or the sale.

(2.) Where a resale is made, as authorized in this section, the buyer acquires a good title as against the original buyer.

(3.) It is not essential to the validity of a resale that notice of an intention to resell the goods be given by the seller to the original buyer. But where the right to resell is not based on the perishable nature of the goods or upon an express provision of the contract or the sale, the giving or failure to give such notice shall be relevant in any issue involving the question whether the buyer had been in default an unreasonable time before the resale was made.

(4.) It is not essential to the validity of a resale that notice of the time and place of such resale should be given by the seller to the original buyer.

(5.) The seller is bound to exercise reasonable care and judgment in making a resale, and subject to this requirement may make a resale either by public or private sale.

This section differs considerably from Section 48 of the English Act. The wording of that section did not seem wholly adequate.

Section 48 (2) of the English Act seems to provide that the resale, whether rightly made or not, so long as it is made by a seller having a lien gives a good title, and Section 8 of the Factors' Act of 1889, providing that any seller in possession has power to make a valid sale or pledge, squares with this; but the provision seems somewhat drastic for this country. See Mechem, § 1644. The

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requirements as to delivery and change of possession in this draft would generally protect the purchaser on the resale if he got delivery, and this seems far enough to go.

The point covered by (3) is much disputed. The English law requires notice where the goods are not perishable, and some cases so hold in this country. Others reach a contrary result. See Mechem, § 1633. On the one hand, it seems undesirable to make a resale invalid under all circumstances for lack of notice. The lapse of time or other circumstances might make it highly unjust to allow the buyer later, when perhaps market prices had risen, to make such a claim. On the other hand, it seems desirable that notice should generally be given. The provision suggested will have the effect, it is hoped, of making notice necessary unless the default of the buyer is very clear and long continued. (4) expresses the law. Mechem, § 1637.

RESCISSION BY THE SELLER.

SECTION 61.—[WHEN AND HOW THE SELLER MAY RESCIND THE SALE.] (1.) An unpaid seller having a right of lien or having stopped the goods in transitu, may rescind the transfer of title and resume the property in the goods, where he expressly reserved the right to do so in case the buyer should make default, or where the buyer has been in default in the payment of the price an unreasonable time. The seller shall not thereafter be liable to the buyer upon the contract to sell or the sale, but may recover from the buyer damages for any loss occasioned by the breach of the contract or the sale.

(2.) The transfer of title shall not be held to have been rescinded by an unpaid seller until he has manifested by notice to the buyer or by some other overt act an intention to rescind. It is not necessary that such overt act should be communicated to the buyer, but the giving or failure to give notice to the buyer of the intention to rescind shall be relevant in any issue involving the question whether the buyer had been in default an unreasonable time before the right of rescission was asserted.

This section is not contained in the English Act, and the remedy for which the section provides is not allowed by English law. It is allowed in this country, and seems fully justified by mercantile custom and convenience. Mechem, § 1681, 1682; Burdick, p. 243.

SECTION 62.—[EFFECT OF SALE OF GOODS SUBJECT TO LIEN OR STOPPAGE IN TRANSITU.] Subject to the provisions of this act, the unpaid seller's right of lien or stoppage in transitu is not affected

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by any sale, or other disposition of the goods which the buyer may have made, unless the seller has assented thereto.

If, however, a negotiable document of title has been issued for goods, no seller's lien or right of stoppage in transitu shall defeat the right of any purchaser for value in good faith to whom such document has been negotiated, whether such negotiation be prior or subsequent to the notification to the carrier or other bailee who issued such document, of the seller's claim to a lien or right of stoppage in transitu.

This section is based on Section 47 of the English Act. The proviso is, however, made more far reaching than in the English Act in order to cover a case which does not seem to have arisen or to have been considered in England, namely, where a bill of lading is transferred to an innocent purshaser for value after notice to stop has been given. The only case is Newhall *v.* Central Pac. R. R., 51 Cal. 345, which protects the purchaser. This case has been criticised. See Mechem, § 1567; Burdick, p. 236; Hutchinson on Carriers, § 414. But it seems clearly better to limit the right of stoppage in transitu of a seller who has entrusted the buyer with a perfect apparent title than to deprive the innocent purchaser of the goods.

PART V.

ACTIONS FOR BREACH OF THE CONTRACT.

REMEDIES OF THE SELLER.

SECTION 63.—[ACTION FOR THE PRICE.] (1.) Where, under a contract to sell or a sale, the property in the goods has passed to the buyer, and the buyer wrongfully neglects or refuses to pay for the goods according to the terms of the contract or the sale, the seller may maintain an action against him for the price of the goods.

(2.) Where, under a contract to sell or a sale, the price is payable on a day certain, irrespective of delivery or of transfer of title, and the buyer wrongfully neglects or refuses to pay such price, the seller may maintain an action for the price, although the property in the goods has not passed, and the goods have not been appropriated to the contract. But it shall be a defense to such an action that the seller at any time before judgment in such action has manifested an inability to perform the contract or the sale on his part or an intention not to perform it.

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(3.) Although the property in the goods has not passed, if they can not readily be resold for a reasonable price, and if the provisions of section 64 (4) are not applicable, the seller may offer to deliver the goods to the buyer, and, if the buyer refuses to receive them, may notify the buyer that the goods are thereafter held by the seller as bailee for the buyer. Thereafter the seller may treat the goods as the buyer's and may maintain an action for the price.

(1) and the first half of (2) follow the English Act. The addition to (2) beginning "But," etc., is believed to be justified by the weight of American authority.

(3) is not law in England, nor is it in a number of American States. On the other hand, the New York court, in an often quoted passage, allows the remedy to an unpaid vendor generally without any qualification as to the nature of the goods. It is also allowed in the civil law. The rule suggested goes as far as convenience requires, for if the goods can readily be resold, the action for damages affords adequate relief. See Mechem, § 1694.

SECTION 64.—[ACTION FOR DAMAGES FOR NON-ACCEPTANCE OF THE GOODS.] (1.) Where the buyer wrongfully neglects or refuses to accept and pay for the goods, the seller may maintain an action against him for damages for non-acceptance.

(2.) The measure of damages is the estimated loss directly and naturally resulting, in the ordinary course of events, from the buyer's breach of contract.

(3.) Where there is an available market for the goods in question the measure of damages is, in the absence of special circumstances, showing proximate damage of a greater amount, the difference between the contract price and the market or current price at the time or times when the goods ought to have been accepted, or, if no time was fixed for acceptance, then at the time of the refusal to accept.

(4.) If, while labor or expense of material amount are necessary on the part of the seller to enable him to fulfill his obligations under the contract to sell or the sale, the buyer repudiates the contract or the sale, or notifies the seller to proceed no further therewith, the buyer shall be liable to the seller for no greater damages than the seller would have suffered if he did nothing towards carrying ont the contract or the sale after receiving notice of the buyer's repudiation or countermand. The profit the seller would have made if the contract or the sale had been fully performed shall be considered in estimating such damages.

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This follows Section 50 of the English Act, except (4), which is added. (4) is not law in England, but it is in this country except in Illinois. See 14 Harv. L. Rev. 422; Mechem, § 1700 *et seq.* The provision does not require the seller to cease performance in every case. There may be cases where the damage caused by stopping performance would be greater than that caused by finishing the necessary work. See Southern Cotton Oil Co. *v.* Heflin, 99 Fed. Rep. 339. In such a case the seller might complete performance, and recover damages based on completed performance.

SECTION 65.—[WHEN SELLER MAY RESCIND CONTRACT OR SALE.] Where the goods have not been delivered to the buyer, and the buyer has repudiated the contract to sell or sale, or has manifested his inability to perform his obligations thereunder, or has committed a material breach thereof, the seller may totally rescind the contract or the sale by giving notice of his election so to do to the buyer.

Section 61 allows the seller to rescind the transfer of title in the cases there covered. The rescission of all contractual obligation between the parties—a more extensive right—is covered by this section, which is believed to express the American law.

REMEDIES OF THE BUYER.

SECTION 66.—[ACTION FOR CONVERTING OR DETAINING GOODS.] Where the property in the goods has passed to the buyer and the seller wrongfully neglects or refuses to deliver the goods, the buyer may maintain any action allowed by law to the owner of goods of similar kind when wrongfully converted or withheld.

This section, which is not contained in the English Act, allows trover, replevin, equitable, or other relief, as the local law may warrant.

SECTION 67.—[ACTION FOR FAILING TO DELIVER GOODS.] (1.) Where the property in the goods has not passed to the buyer, and the seller wrongfully neglects or refuses to deliver the goods, the buyer may maintain an action against the seller for damages for non-delivery.

(2.) The measure of damages is the loss directly and naturally resulting in the ordinary course of events, from the seller's breach of contract.

(3.) Where there is an available market for the goods in question, the measure of damages, in the absence of special circumstances showing proximate damages of a greater amount, is the difference

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between the contract price and the market or current price of the goods at the time or times when they ought to have been delivered, or, if no time was fixed, then at the time of the refusal to deliver.

This follows section 51 of the English Act.

SECTION 68.—[SPECIFIC PERFORMANCE.] Where the seller has broken a contract to deliver specific or ascertained goods, a court having the powers of a court of equity may, if it thinks fit, on the application of the buyer, by its judgment or decree direct that the contract shall be performed specifically, without giving the seller the optionof retaining the goods on payment of damages. The judgment or decree may be unconditional, or upon such terms and conditions as to damages, payment of the price and otherwise, as to the court may seem just.

This follows, with slight changes in wording, Section 52 of the English Act.

SECTION 69.—[REMEDIES FOR BREACH OF WARRANTY.] (1.) Where there is a breach of warranty by the seller, the buyer may, at his election—

(a.) Accept or keep the goods and set up against the seller, the breach of warranty by way of recoupment in diminution or extinction of the price;

(b.) Accept or keep the goods and maintain an action against the seller for damages for the breach of warranty;

(c.) Refuse to accept the goods, if the property therein has not passed, and maintain an action against the seller for damages for the breach of warranty;

(d.) Rescind the contract to sell or the sale and refuse to receive the goods, or if the goods have already been received, return them or offer to return them to the seller and recover the price or any part thereof which has been paid.

(2.) When the buyer has claimed and been granted a remedy in any one of these ways, no other remedy can thereafter be granted.

(3.) Where the goods have been delivered to the buyer, he, can not rescind the sale if he knew of the breach of warranty when he accepted the goods, or if he fails to notify the seller within a reasonable time of the election to rescind, or if he fails to return or to offer to return the goods to the seller in substantially as good condition as they were in at the time the property was transferred to the buyer.

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But if deterioration or injury of the goods is due to the breach of warranty, such deterioration or injury shall not prevent the buyer from returning or offering to return the goods to the seller and rescinding the sale.

(4.) Where the buyer is entitled to rescind the sale and elects to do so, the buyer shall cease to be liable for the price upon returning or offering to return the goods. If the price or any part thereof has already been paid, the seller shall be liable to repay so much thereof as has been paid, concurrently with the return of the goods, or immediately after an offer to return the goods in exchange for repayment of the price.

(5.) Where the buyer is entitled to rescind the sale and elects to do so, if the seller refuses to accept an offer of the buyer to return the goods, the buyer shall thereafter be deemed to hold the goods as bailee for the seller, but subject to a lien to secure the repayment of any portion of the price which has been paid, and with the remedies for the enforcement of such lien allowed to an unpaid seller by section 53.

(6.) The measure of damages for breach of warranty is the loss directly and naturally resulting, in the ordinary course of events, from the breach of warranty.

(7.) In the case of breach of warranty of quality, such loss, in the absence of special circumstances showing proximate damage of a greater amount, is the difference between the value of the goods at the time of delivery to the buyer and the value they would have had if they had answered to the warranty.

This section differs materially from the corresponding section of the English Act.—Section 53. This draft allows rescission as a remedy for breach of warranty. The English law does not. In defence of the remedy of rescission, see an article by the draftsman in 16 Harv. L. Rev. 465. This article led to a discussion with Professor Burdick, who supported the English doctrine. Sec. 4 Columbia L. Rev. 1, 195, 265; 17 Harv. L. Rev. 500. Further, the English Act, following Mondel *v.* Steel, 8 M. & W. 858, allows the buyer to recoup his damages in an action for the price and thereafter to bring an action for damages. This seems erroneous, see Watkins *v.* American Bank, 134 Fed. Rep. 36 (C. C. A.), and has been changed in this draft.

SECTION 70.—[INTEREST AND SPECIAL DAMAGES.] Nothing in this act shall affect the right of the buyer or the seller to recover interest or special damages in any case where by law interest or

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special damages may be recoverable, or to recover money paid where the consideration for the payment of it has failed.

This follows Section 54 of the English Act.

PART VI.

INTERPRETATION.

SECTION 71.—[VARIATION OF IMPLIED OBLIGATIONS.] Where any right, duty, or liability would arise under a contract to sell or a sale by implication of law, it may be negatived or varied by express agreement or by the course of dealing between the parties, or by custom, if the custom be such as to bind both parties to the contract or the sale.

This follows Section 55 of the English Act.

SECTION 72.—[RIGHTS MAY BE ENFORCED BY ACTION.] Where any right, duty, or liability is declared by this act, it may, unless otherwise by this act provided, be enforced by action.

This follows Section 57 of the English Act.

SECTION 73.—[RULE FOR CASES NOT PROVIDED FOR BY THIS ACT.] In any case not provided for in this act, the rules of law and equity, including the law merchant, and in particular the rules relating to the law of principal and agent and to the effect of fraud, misrepresentation, duress, or coercion, mistake, bankruptcy, or other invalidating cause, shall continue to apply to contracts to sell and to sales of goods.

This provision seems obviously desirable.

SECTION 74.—[INTERPRETATION SHALL GIVE EFFECT TO PURPOSE OF UNIFORMITY.] This act shall be so interpreted and construed, if possible, as to effectuate its general purpose to make uniform the law of those states which enact it.

This section introduces a new principle of statutory interpretation. It is,

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however, obviously a proper principle in regard to statutes, the primary object of which is to make the law uniform.

SECTION 75.—[PROVISIONS NOT APPLICABLE TO MORTGAGES.] The provisions of this act relating to contracts to sell and to sales do not apply, unless so stated, to any transaction in the form of a contract to sell or a sale which is intended to operate by way of mortgage, pledge, charge, or other security.

This follows Section 60 (2) of the English Act, except for the words "unless so stated." Though the draft does not generally purport to deal with the peculiar rules of mortgage law, there are a few places in which mortgage relations or similar ones are covered, *e. g.*, Sections 20 (2), 22 (a).

SECTION 76.—[DEFINITIONS.] (1.) In this act, unless the context or subject matter otherwise requires—

"Action" includes counterclaim, set-off, and suit in equity.

"Buyer" means a person who buys or agrees to buy goods or any legal successor in interest of such person.

"Defendant" includes a plaintiff against whom a right of set-off or counterclaim is asserted.

"Delivery" means voluntary transfer of possession from one person to another.

"Divisible contract to sell or sale" means a contract to sell or a sale in which by its terms the price for a portion or portions of the goods less than the whole is fixed or ascertainable by computation.

"Document of title to goods" includes any bill of lading, dock warrant, warehouse receipt, or order for the delivery of goods, or any other document used in the ordinary course of business in the sale or transfer of goods, as proof of the possession or control of the goods, or authorizing or purporting to authorize the possessor of the document to transfer or receive, either by endorsement or by delivery, goods represented by such document.

"Fault" means wrongful act or default.

"Fungible goods" mean goods of which any unit is from its nature or by mercantile usage treated as the equivalent of any other unit.

"Future goods" mean goods to be manufactured or acquired by the seller after the making of the contract of sale.

"Goods" include all chattels personal other than things in action and money. The term includes emblements, industrial growing crops, and things attached to or forming part of the land which are agreed to be severed before sale or under the contract of sale.

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"Order" in sections of this act relating to documents of title means an order by indorsement on the document.

"Person" includes a corporation or partnership or two or more persons having a joint or common interest.

"Plaintiff" includes defendant asserting a right of set-off or counterclaim.

"Property" means the general property in goods, and not merely a special property.

"Purchaser" includes mortgagee and pledgee.

"Purchases" include taking as a mortgagee or as a pledgee.

"Quality of goods" includes their state or condition.

"Sale" includes a bargain and sale as well as a sale and delivery.

"Seller" means a person who sells or agrees to sell goods, or any legal successor in interest of such person.

"Specific goods" mean goods identified and agreed upon at the time a contract to sell or a sale is made.

"Value" is any consideration sufficient to support a simple contract. An antecedent or pre-existing claim, whether for money or not, constitutes value where goods or documents of title are taken either in satisfaction thereof or as security therefor.

(2.) A thing is done "in good faith" within the meaning of this act when it is in fact done honestly, whether it be done negligently or not.

(3.) A person is insolvent within the meaning of this act who either has ceased to pay his debts in the ordinary course of business or can not pay his debts as they become due, whether he has committed an act of bankruptcy or not, and whether he is insolvent within the meaning of the federal bankruptcy law or not.

(4.) Goods are in a "deliverable state" within the meaning of this act when they are in such a state that the buyer would, under the contract, be bound to take delivery of them.

The only one of these definitions requiring comment is that of "value" which follows the weight of authority at common law and the provision of the Negotiable Instrument Law as intended by its framers. In regard to property other than negotiable instruments the law of many States does not regard an antecedent debt as value; but it seems desirable to have a single rule for what constitutes valuable consideration, and mercantile convenience supports the one adopted. It is supported, moreover, by the law of England and a few of our States. See Williston's Cases on Sales (2d ed.), 369, n.

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SECTION 77.—[INCONSISTENT LEGISLATION REPEALED.] All acts or parts of acts inconsistent with this act are hereby repealed.

SECTION 78.—[TIME WHEN THE ACT TAKES EFFECT.] This act shall take effect on the day of one thousand nine hundred and

SECTION 79.—[NAME OF ACT.] This act may be cited as the Sales Act.

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EXHIBIT "B."

In 1904 the American Warehousemen's Association placed a sum of money at the disposal of the Commissioners on Uniform State Laws in the national conference to meet the expense of the preparation of a draft of a uniform act on the subject of Warehouse Receipts. The conference accepted the offer and engaged Prof. Samuel Williston, of the Harvard Law School, and Mr. Barry Mohun, of the Washington bar, to make the proposed draft. The preliminary work of the draftsmen was submitted to the conference at its meeting at Narragansett Pier on August 18, 1905. A number of changes were made and the matter recommitted to the draftsmen to prepare a new draft.

During the ensuing winter and spring the act was carefully considered at meetings of the American Warehousemen's Association and of a committee of the American Bankers' Association. The draftsmen were present at these meetings and explained the provisions of the act. Valuable suggestions as to the best usage in the business and as to the necessities of commerce were made by the warehousemen and bankers, with the added light furnished by suggestions and criticsms. A new draft was prepared and submitted to the conference at St. Paul in August, 1906. This draft was considered section by section, both by the Committee on Commercial Law and by the conference as a whole and with some changes which have been embodied in the following pages, was adopted and the following resolution was passed:

"*Be it Resolved*, by the Commissioners on Uniform State Laws, at their annual conference, held this twenty-eighth day of August, 1906:

"(1) That the draft of an act entitled 'Draft of an Act to make Uniform the Law of Warehouse Receipts' be approved, and that the legislatures of the several States be requested and urged to enact the same into law.

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"(2) That Prof. Samuel Williston and Mr. Barry Mohun shall prepare appropriate notes to each section and correct any verbal inaccuracies therein.

"(3) That the Committee on Commercial Law cause said draft, act, and annotations, together with appropriate preface and introduction and other matter that said committee may consider proper, to be printed and distributed.

"(4) That a sum not to exceed two hundred ($200) dollars be appropriated to the use of said committee for the printing and distribution of said act.

"(5) That the Assistant Secretary shall be the Secretary of said committee and aid in the discharge of its duties."

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DRAFT OF AN ACT TO MAKE UNIFORM THE LAW OF WAREHOUSE RECEIPTS.

Be it enacted, etc., as follows:

PART I.

THE ISSUE OF WAREHOUSE RECEIPTS.

SECTION 1.—[PERSONS WHO MAY ISSUE RECEIPTS.] Warehouse receipts may be issued by any warehouseman.

This should be read in connection with the definition of warehouseman in Section 58. On account of varying local conditions and laws it seemed impracticable in an act intended to be passed in many States to fix limits as to who might carry on the business of warehousing.

SECTION 2.—[FORM OF RECEIPTS. ESSENTIAL TERMS.] Warehouse receipts need not be in any particular form, but every such receipt must embody within its written or printed terms—

(a.) The location of the warehouse where the goods are stored,

(b.) The date of issue of the receipt,

(c.) The consecutive number of the receipt,

(d.) A statement whether the goods received will be delivered to the bearer, to a specified person or to a specified person or his order,

(e.) The rate of storage charges,

(f.) A description of the goods or of the packages containing them,

(g.) The signature of the warehouseman, which may be made by his authorized agent,

(h.) If the receipt is issued for goods of which the warehouseman is owner, either solely or jointly or in common with others, the fact of such ownership, and

(i.) A statement of the amount of advances made and of liabilities incurred for which the warehouseman claims a lien. If the precise amount of such advances made or of such liabilities incurred is, at

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the time of the issue of the receipt, unknown to the warehouseman or to his agent who issues it, a statement of the fact that advances have been made or liabilities incurred and the purpose thereof is sufficient.

A warehouseman shall be liable to any person injured thereby, for all damages caused by the omission from a negotiable receipt of any of the terms herein required.

This section is in accordance with business custom except (h) and (i). As some abuses have arisen from warehousemen issuing receipts on their own goods, it seemed wise that when they issued negotiable receipts in this way the document should carry notice of the fact on its face. See Section 53 in this connection. It is obvious also that negotiable receipts should show on their face what charges are claimed against the goods. See further as to this, Section 30.

Though it is desired that all warehouse receipts shall conform to the rules here laid down, the essential thing is that negotiable receipts shall do so, and as to them only is a sanction imposed for failing to insert the statutory terms.

SECTION 3.—[FORM OF RECEIPTS. WHAT TERMS MAY BE INSERTED.] A warehouseman may insert in a receipt, issued by him, any other terms and conditions, provided that such terms and conditions shall not—

(a.) Be contrary to the provisions of this act.

(b.) In any wise impair his obligation to exercise that degree of care in the safe-keeping of the goods entrusted to him which a reasonably careful man would exercise in regard to similar goods of his own.

Public policy demands that in the case of warehousemen, as well as in the case of carriers, where the question has more often arisen, a contract to be freed from the consequences of negligence should not be allowed. See Schouler on Bailments (1905), §§ 36, 362 *et seq.*

SECTION 4.—[DEFINITION OF NON-NEGOTIABLE RECEIPT.] A receipt in which it is stated that the goods received will be delivered to the depositor, or to any other specified person, is a non-negotiable receipt.

See note to the following section.

SECTION 5.—[DEFINITION OF NEGOTIABLE RECEIPT.] A receipt in which it is stated that the goods received will be delivered to the bearer, or to the order of any person named in such receipt is a negotiable receipt.

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No provision shall be inserted in a negotiable receipt that it is non-negotiable. Such provision, if inserted, shall be void.

This draft makes a fundamental distinction throughout between negotiable and non-negotiable receipts. The former is the negotiable representative of the goods, the latter is merely evidence of an ordinary contract of bailment. This distinction accords with mercantile usage, and though in many places the law is not clear, the prevailing legal understanding agrees with the mercantile usage. Hallgarten *v.* Oldham, 135 Mass. 1.

SECTION 6.—[DUPLICATE RECEIPTS MUST BE SO MARKED.] When more than one negotiable receipt is issued for the same goods, the word "duplicate" shall be plainly placed upon the face of every such receipt, except the one first issued. A warehouseman shall be liable for all damage caused by his failure so to do to any one who purchased the subsequent receipt for value supposing it to be an original, even though the purchase be after the delivery of the goods by the warehouseman to the holder of the original receipt.

It is the practice of most if not all careful warehousemen not to issue duplicate negotiable receipts at all, and such issues are to be discouraged, but following a large number of statutes already existing this act instead of forbidding the practice altogether safeguards it by requiring the receipt to be plainly marked.

SECTION 7.—[FAILURE TO MARK "NOT NEGOTIABLE."] A non-negotiable receipt shall have plainly placed upon its face by the warehouseman issuing it "non-negotiable," or "not negotiable." In case of the warehouseman's failure so to do, a holder of the receipt who purchased it for value supposing it to be negotiable, may, at his option, treat such receipt as imposing upon the warehouseman the same liabilities he would have incurred had the receipt been negotiable.

This section shall not apply, however, to letters, memoranda, or written acknowledgments of an informal character.

This section like the preceding is aimed at obvious frauds. Both follow much existing legislation. See passages in Mohun on Warehousemen indexed at pp. 943, 944.

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PART II.

OBLIGATIONS AND RIGHTS OF WAREHOUSEMEN UPON THEIR RECEIPTS.

SECTION 8.—[OBLIGATION OF WAREHOUSEMAN TO DELIVER.] A warehouseman, in the absence of some lawful excuse provided by this act, is bound to deliver the goods upon a demand made either by the holder of a receipt for the goods or by the depositor, if such demand is accompanied with—

(a.) An offer to satisfy the warehouseman's lien,

(b.) An offer to surrender the receipt if negotiable, with such indorsements as would be necessary for the negotiation of the receipt, and

(c.) A readiness and willingness to sign, when the goods are delivered, an acknowledgment that they have been delivered, if such signature is requested by the warehouseman.

In case the warehouseman refuses or fails to deliver the goods in compliance with a demand by the holder or depositor so accompanied, the burden shall be upon the warehouseman to establish the existence of a lawful excuse for such refusal.

See the definition of "holder" in Section 58. The requirement of signing an acknowledgment that the goods have been received is in accordance with universal business usage, though it is doubtful if the usage has been supported by law. As the usage is reasonable it is adopted as the rule of this act. The burden imposed on the warehouseman in the last paragraph agrees with existing law. Burnell *v.* N. Y. C. R. R. Co. 45, N. Y. 184.

SECTION 9.—[JUSTIFICATION OF WAREHOUSEMAN IN DELIVERING.] A warehouseman is justified in delivering the goods, subject to the provisions of the three following sections, to one who is—

(a.) The person lawfully entitled to the possession of the goods, or his agent,

(b.) A person who is either himself entitled to delivery by the terms of a non-negotiable receipt issued for the goods, or who has written authority from the person so entitled either indorsed upon the receipt or written upon another paper, or

(c.) A person in possession of a negotiable receipt by the terms of which the goods are deliverable to him or order or to bearer, or which

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has been indorsed to him or in blank by the person to whom delivery was promised by the terms of the receipt or by his mediate or immediate indorsee.

This section gives the warehouseman a justification in some cases where he would not under the preceding section be bound to deliver, *e. g.* If a thief presented a negotiable receipt properly indorsed, the warehouseman would be protected if he delivered the goods innocently.

SECTION 10.—[WAREHOUSEMAN'S LIABILITY FOR MISDELIVERY.] Where a warehouseman delivers the goods to one who is not in fact lawfully entitled to the possession of them, the warehouseman shall be liable as for conversion to all having a right of property or possession in the goods if he delivered the goods otherwise than as authorized by subdivisions (b) and (c) of the preceding section and though he delivered the goods as authorized by said subdivisions he shall be so liable, if prior to such delivery he had either

(a.) Been requested, by or on behalf of the person lawfully entitled to a right of property or possession in the goods, not to make such delivery, or

(b.) Had information that the delivery about to be made was to one not lawfully entitled to the possession of the goods.

This is believed to represent the law. See Schouler (1905), §§ 44, 45; Velsian *v.* Lewis, 15 Oreg. 539.

SECTION 11.—[NEGOTIABLE RECEIPTS MUST BE CANCELLED WHEN GOODS DELIVERED.] Except as provided in Section 36, where a warehouseman delivers goods for which he had issued a negotiable receipt, the negotiation of which would transfer the right to the possession of the goods, and fails to take up and cancel the receipt, he shall be liable to any one who purchases for value in good faith such receipt, for failure to deliver the goods to him, whether such purchaser acquired title to the receipt before or after the delivery of the goods by the warehouseman.

It is an obvious requirement of the mercantile use of negotiable receipts that the goods shall remain in the warehouse as long as the receipt is outstanding, and statutes similar in effect to this section are in force in some States. Mohun, 2, 24, 355, 382, 538, 593.

The section does not apply to non-negotiable receipts, because usage and mercantile necessity frequently require delivery in such cases without surrender of the receipt.

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SECTION 12.—[NEGOTIABLE RECEIPTS MUST BE CANCELLED OR MARKED WHEN PART OF GOODS DELIVERED.] Except as provided in Section 36, where a warehouseman delivers part of the goods for which he had issued a negotiable receipt and fails either to take up and cancel such receipt, or to place plainly upon it a statement of what goods or packages have been delivered he shall be liable, to any one who purchases for value in good faith such receipt, for failure to deliver all the goods specified in the receipt, whether such purchaser acquired title to the receipt before or after the delivery of any portion of the goods by the warehouseman.

This section follows as to partial deliveries the rule of the preceding.

SECTION 13.—[ALTERED RECEIPTS.] The alteration of a receipt shall not excuse the warehouseman who issued it from any liability if such alteration was

(a.) Immaterial,

(b.) Authorized, or

(c.) Made without fraudulent intent.

If the alteration was authorized, the warehouseman shall be liable according to the terms of the receipt as altered. If the alteration was unauthorized, but made without fraudulent intent, the warehouseman shall be liable according to the terms of the receipt, as they were before alteration.

Material and fraudulent alteration of a receipt shall not excuse the warehouseman who issued it from liability to deliver, according to the terms of the receipt as originally issued, the goods for which it was issued, but shall excuse him from any other liability to the person who made the alteration and to any person who took with notice of the alteration. Any purchaser of the receipt for value without notice of the alteration shall acquire the same rights against the warehouseman which such purchaser would have acquired if the receipt had not been altered at the time of the purchase.

This section adopts the prevailing rule of the common law. Even fraudulent alteration can not divest the title of the owner of stored goods, and the warehouseman is therefore liable to redeliver them to the owner.

SECTION 14.—[LOST OR DESTROYED RECEIPTS.] Where a negotiable receipt has been lost or destroyed, a court of competent jurisdiction may order the delivery of the goods upon satisfactory

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proof of such loss or destruction and upon the giving of a bond with sufficient sureties to be approved by the court to protect the warehouseman from any liability or expense, which he or any person injured by such delivery may incur by reason of the original receipt remaining outstanding. The court may also in its discretion order the payment of the warehouseman's reasonable costs and counsel fees.

The delivery of the goods under an order of the court as provided in this section, shall not relieve the warehouseman from liability to a person to whom the negotiable receipt has been or shall be negotiated for value without notice of the proceedings or of the delivery of the goods.

As it is for obvious reasons forbidden and indeed made a criminal offence (Section 52) to issue an additional negotiable receipt, it is evident that great care must be used in permitting such an issue or, what is the same thing, the redelivery of the goods without the surrender of the original receipt. It is not enough that the parties agree that the goods shall be given up or a new receipt issued. It is essential that a court shall pass upon the question and make sure that the original is lost or destroyed and that a proper indemnity is taken, for the rights of possible innocent purchasers of the original receipt are involved.

SECTION 15.—[EFFECT OF DUPLICATE RECEIPTS.] A receipt upon the face of which the word "duplicate" is plainly placed is a representation and warranty by the warehouseman that such receipt is an accurate copy of an original receipt properly issued and uncancelled at the date of the issue of the duplicate, but shall impose upon him no other liability.

See note to Section 6.

SECTION 16.—[WAREHOUSEMAN CAN NOT SET UP TITLE IN HIMSELF.] No title or right to the possession of the goods, on the part of the warehouseman, unless such title or right is derived directly or indirectly from a transfer made by the depositor at the time of or subsequent to the deposit for storage, or from the warehouseman's lien, shall excuse the warehouseman from liability for refusing to deliver the goods according to the terms of the receipt.

This states the common law. 3 Am. & Eng. Encyc. of Law, 759.

SECTION 17.—[INTERPLEADER OF ADVERSE CLAIMANTS.] If more than one person claim the title or possession of the goods, the

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warehouseman may, either as a defence to an action brought against him for non-delivery of the goods, or as an original suit, whichever is appropriate, require all known claimants to interplead.

The case of Crawshay *v.* Thornton, 2 Myl. & C. 1, unfortunately held that interpleader was not a proper remedy in such a case. It is, however, the only adequate remedy and is probably generally allowed in this country. 3 Am. & Eng. Encyc. of Law, 762.

SECTION 18.—[WAREHOUSEMAN HAS REASONABLE TIME TO DETERMINE VALIDITY OF CLAIMS.] If some one other than the depositor or person claiming under him has a claim to the title or possession of the goods, and the warehouseman has information of such claim, the warehouseman shall be excused from liability for refusing to deliver the goods, either to the depositor or person claiming under him or to the adverse claimant, until the warehouseman has had a reasonable time to ascertain the validity of the adverse claim or to bring legal proceedings to compel all claimants to interplead.

It seems obviously proper that the warehouseman should be protected for such brief period as may be necessary to enable him to determine the rights of the claimants.

SECTION 19.—[ADVERSE TITLE IS NO DEFENCE, EXCEPT AS ABOVE PROVIDED.] Except as provided in the two preceding sections and in Sections 9 and 36, no right or title of a third person shall be a defence to an action brought by the depositor or person claiming under him against the warehouseman for failure to deliver the goods according to the terms of the receipt.

Except as qualified by the preceding sections, the common-law doctrine is here stated that a bailee can not set up the title of a third person as an excuse for failure to deliver goods. See 3 Am. & Eng. Encyc. 758.

SECTION 20.—[LIABILITY FOR NON-EXISTENCE OR MISDESCRIPTION OF GOODS.] A warehouseman shall be liable to the holder of a receipt for damages caused by the non-existence of the goods or by the failure of the goods to correspond with the description thereof in the receipt at the time of its issue. If, however, the goods are described in a receipt merely by a statement of marks or labels upon them, or upon packages containing them, or by a statement that the goods are said to be goods of a certain kind, or that packages containing the

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goods are said to contain goods of a certain kind, or by words of like purport, such statements, if true, shall not make liable the warehouseman issuing the receipt, although the goods are not of the kind which the marks or labels upon them indicate, or of the kind they were said to be by the depositor.

This section imposes on the warehouseman a stricter rule than that generally in force in this country in that it makes a warehouseman liable for an innocent misdescription of the goods. See Hale *v.* Milwaukee Dock Co., 23 Wis. 276; but as the warehouseman can readily protect himself by inserting in the receipt only what he knows, namely the marks on the goods or the statements of the depositor regarding them, it seems best to make the warehouseman responsible for what he asserts.

SECTION 21.—[LIABILITY FOR CARE OF GOODS.] A warehouseman shall be liable for any loss or injury to the goods caused by his failure to exercise such care in regard to them as a reasonably careful owner of similar goods would exercise, but he shall not be liable, in the absence of an agreement to the contrary, for any loss or injury to the goods which could not have been avoided by the exercise of such care.

This states the common law. 3 Am. & Eng. Encyc. 750.

SECTION 22.—[GOODS MUST BE KEPT SEPARATE.] Except as provided in the following section, a warehouseman shall keep the goods so far separate from goods of other depositors, and from other goods of the same depositor for which a separate receipt has been issued, as to permit at all times the identification and redelivery of the goods deposited.

As to most merchandise, of course, the warehouseman's duty is to keep the goods of each depositor separate. The following section provides for the exception to the rule.

SECTION 23.—[FUNGIBLE GOODS MAY BE COMMINGLED, IF WAREHOUSEMAN AUTHORIZED.] If authorized by agreement or by custom, a warehouseman may mingle fungible goods with other goods of the same kind and grade. In such case the various depositors of the mingled goods shall own the entire mass in common, and each depositor shall be entitled to such portion thereof as the amount deposited by him bears to the whole.

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An exceptional rule prevails in this country by custom as to grain and similar merchandise. See definition of fungible in Section 58.

SECTION 24.—[LIABILITY OF WAREHOUSEMAN TO DEPOSITORS OF COMMINGLED GOODS.] The warehouseman shall be severally liable to each depositor for the care and redelivery of his share of such mass to the same extent and under the same circumstances as if the goods had been kept separate.

This section and the two preceding sections state the general American law.

SECTION 25.—[ATTACHMENT OR LEVY UPON GOODS FOR WHICH A NEGOTIABLE RECEIPT HAS BEEN ISSUED.] If goods are delivered to a warehouseman by the owner or by a person whose act in conveying the title to them to a purchaser in good faith for value would bind the owner, and a negotiable receipt is issued for them, they can not thereafter, while in the possession of the warehouseman, be attached by garnishment or otherwise, or be levied upon under an execution, unless the receipt be first surrendered to the warehouseman, or its negotiation enjoined. The warehouseman shall in no case be compelled to deliver up the actual possession of the goods until the receipt is surrendered to him or impounded by the court.

If the mercantile theory of documents of title, such as bills of lading and warehouse receipts, were carried to its logical extent, no attachment of the goods represented by the document or levy upon them could be permitted while the negotiable document was outstanding. For the mercantile theory proceeds upon the assumption that a negotiable document of title represents the goods and may be safely dealt with on that assumption. For one and the same reason it is not admissible for the bailee to deliver the goods without taking up an outstanding negotiable receipt for them, and for the law to allow attachment or levy upon the goods, regardless of outstanding negotiable documents. For a similar reason the maker of negotiable notes is protected by garnishment; in most States by absolutely disallowing such garnishment and in other States by making any garnishment subject to the rights of even a subsequent purchaser for value before maturity of the paper. Likewise by statute in some States an attachment of stock is postponed to a subsequent purchaser of the stock certificate. Clews *v.* Friedman, 180 Mass. 556. So in the case of carriers, some protection against garnishment has been given. In most States, if the goods are actually in transit the carrier can not be garnished. 14 Am. & Eng. Encyc. of Law, 810. A transfer of the bill of lading prevails over a subsequent attachment. Mather *v.* Gordon, 59 At. Rep. 424 (Conn.); Robert C. White Co. *v.* Chicago & C. R. Co., 87 Mo. App. 330; Union Bank *v.* Rowan, 23 S. C. 339; and in Peters *v.* Elliott, 78 Ill. 321, it was held, that an attaching creditor of a consignor was postponed to one who bought the bill of lading subsequently.

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It was thought best in this draft not to take the extreme position that no attachment, garnishment, or levy could be made on property for which a negotiable receipt was outstanding, but to cover the essential practical point by making it a condition of the validity of such seizure that the negotiation of the receipt be enjoined or the document impounded. The following section expressly gives the court full power to aid, by injunction and otherwise, a creditor seeking to get at a negotiable receipt and the property covered thereby.

SECTION 26.—[CREDITORS' REMEDIES TO REACH NEGOTIABLE RECEIPTS.] A creditor whose debtor is the owner of a negotiable receipt shall be entitled to such aid from courts of appropriate jurisdiction, by injunction and otherwise, in attaching such receipt or in justifying the claim by means thereof as is allowed at law or in equity, in regard to property which can not readily be attached or levied upon by ordinary legal process.

This section is to enable the court to give the fullest relief possible in making the negotiable receipt available to the creditor, since the goods can not otherwise be taken from the warehouseman's possession.

SECTION 27.—[WHAT CLAIMS ARE INCLUDED IN THE WAREHOUSEMAN'S LIEN.] Subject to the provisions of Section 30, a warehouseman shall have a lien on goods deposited or on the proceeds thereof in his hands, for all lawful charges for storage and preservation of the goods; also for all lawful claims for money advanced, interest, insurance, transportation, labor, weighing, coopering and other charges and expenses in relation to such goods; also for all reasonable charges and expenses for notice, and advertisements of sale, and for sale of the goods where default has been made in satisfying the warehouseman's lien.

This extends the common law, but has the precedent of other statutes. See Mohun, 37, 86, 124, 203, 215, 352, 546, 553, 706, 772, 801, 833.

SECTION 28.—[AGAINST WHAT PROPERTY THE LIEN MAY BE ENFORCED.] Subject to the provisions of Section 30, a warehouse man's lien may be enforced—

(a.) Against all goods, whenever deposited, belonging to the person who is liable as debtor for the claims in regard to which the lien is asserted, and

(b.) Against all goods belonging to others which have been deposited at any time by the person who is liable as debtor for the

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claims in regard to which the lien is asserted, if such person had been so entrusted with the possession of the goods that a pledge of the same by him at the time of the deposit to one who took the goods in good faith for value would have been valid.

SECTION 29.—[HOW THE LIEN MAY BE LOST.] A warehouseman loses his lien upon goods—

(a.) By surrendering possession thereof, or

(b.) By refusing to deliver the goods when a demand is made with which he is bound to comply under the provisions of this act.

This section merely states the rule of the common law.

SECTION 30.—[NEGOTIABLE RECEIPT MUST STATE CHARGES FOR WHICH LIEN IS CLAIMED.] If a negotiable receipt is ssued for goods, the warehouseman shall have no lien thereon, except for charges for storage of those goods subsequent to the date of the receipt, unless the receipt expressly enumerates other charges for which a lien is claimed. In such case there shall be a lien for the charges enumerated so far as they are within the terms of Section 47, although the amount of the charges so enumerated is not stated in the receipt.

This section is obviously requisite for the credit of negotiable receipts. See note to Section 2.

SECTION 31.—[WAREHOUSEMAN NEED NOT DELIVER UNTIL LIEN IS SATISFIED.] A warehouseman having a lien valid against the person demanding the goods may refuse to deliver the goods to him until the lien is satisfied.

This is the rule of the common law.

SECTION 32.—[WAREHOUSEMAN'S LIEN DOES NOT PRECLUDE OTHER REMEDIES.] Whether a warehouseman has or has not a lien upon the goods, he is entitled to all remedies allowed by law to a creditor against his debtor, for the collection from the depositor of all charges and advances which the depositor has expressly or impliedly contracted with the warehouseman to pay.

This section also only restates the common law.

SECTION 33.—[SATISFACTION OF LIEN BY SALE.] A warehouse man's lien for a claim which has become due may be satisfied as follows:

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The warehouseman shall give a written notice to the person on whose account the goods are held, and to any other person known by the warehouseman to claim an interest in the goods. Such notice shall be given by delivery in person or by registered letter addressed to the last known place of business or abode of the person to be notified. The notice shall contain—

(a.) An itemized statement of the warehouseman's claim, showing the sum due at the time of the notice and the date or dates when it became due,

(b.) A brief description of the goods against which the lien exists,

(c.) A demand that the amount of the claim as stated in the notice, and of such further claim as shall accrue, shall be paid on or before a day mentioned, not less than ten days from the delivery of the notice if it is personally delivered, or from the time when the notice should reach its destination, according to the due course of post, if the notice is sent by mail, and

(d.) A statement that unless the claim is paid within the time specified the goods will be advertised for sale and sold by auction at a specified time and place.

In accordance with the terms of a notice so given, a sale of the goods by auction may be had to satisfy any valid claim of the warehouseman for which he has a lien on the goods. The sale shall be had in the place where the lien was acquired, or, if such place is manifestly unsuitable for the purpose, at the nearest suitable place. After the time for the payment of the claim specified in the notice to the depositor has elapsed, an advertisement of the sale, describing the goods to be sold, and stating the name of the owner or person on whose account the goods are held, and the time and place of the sale, shall be published once a week for two consecutive weeks in a newspaper published in the place where such sale is to be held. The sale shall not be held less than fifteen days from the time of the first publication. If there is no newspaper published in such place, the advertisement shall be posted at least ten days before such sale in not less than six conspicuous places therein.

From the proceeds of such sale the warehouseman shall satisfy his lien, including the reasonable charges of notice, advertisement, and sale. The balance, if any, of such proceeds shall be held by the warehouseman, and delivered on demand to the person to whom he would have been bound to deliver or justified in delivering the goods.

At any time before the goods are so sold any person claiming a

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right of property or possession therein may pay the warehouseman the amount necessary to satisfy his lien and to pay the reasonable expenses and liabilities incurred in serving notices and advertising and preparing for the sale up to the time of such payment. The warehouseman shall deliver the goods to the person making such payment if he is a person entitled, under the provisions of this act, to the possession of the goods on payment of charges thereon. Otherwise the warehouseman shall retain possession of the goods according to the terms of the original contract of deposit.

This section is copied with slight changes from the New York law, Mohun, 553.

SECTION 34.—[PERISHABLE AND HAZARDOUS GOODS.] If goods are of a perishable nature, or by keeping will deteriorate greatly in value, or by their odor, leakage, inflammability, or explosive nature will be liable to injure other property, the warehouseman may give such notice to the owner, or to the person in whose name the goods are stored, as is reasonable and possible under the circumstances, to satisfy the lien upon such goods, and to remove them from the warehouse, and in the event of the failure of such person to satisfy the lien and to remove the goods within the time so specified, the warehouseman may sell the goods at public or private sale without advertising. If the warehouseman after a reasonable effort is unable to sell such goods, he may dispose of them in any lawful manner, and shall incur no liability by reason thereof.

The proceeds of any sale made under the terms of this section shall be disposed of in the same way as the proceeds of sales made under the terms of the preceding section.

This section is copied with slight changes from Massachusetts Rev. Laws, c. 69, sec. 9.

SECTION 35.—[OTHER METHODS OF ENFORCING LIENS.] The remedy for enforcing a lien herein provided does not preclude any other remedies allowed by law for the enforcement of a lien against personal property nor bar the right to recover so much of the warehouseman's claim as shall not be paid by the proceeds of the sale of the property.

It did not seem wise in view of the wide difference in procedure between some of the states to make the method of enforcing a lien provided by Section 33 exclusive.

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SECTION 36.—[EFFECT OF SALE.] After goods have been lawfully sold to satisfy a warehouseman's lien, or have been lawfully sold or disposed of because of their perishable or hazardous nature, the warehouseman shall not thereafter be liable for failure to deliver the goods to the depositor, or owner of the goods, or to a holder of the receipt given for the goods when they were deposited, even if such receipt be negotiable.

This section necessarily qualifies the right of a purchaser of a negotiable receipt. Such a purchaser may ordinarily assume that if the document was issued to the owner of the goods and has been duly transferred to the purchaser, the latter will get a good title, but this assumption must be qualified by the chance referred to in this section. The age of the receipt will, however, ordinarily give warning. Moreover the purchaser of the receipt will be entitled to the balance of the proceeds of the sale, after satisfying the warehouseman.

PART III.

NEGOTIATION AND TRANSFER OF RECEIPTS.

SECTION 37.—[NEGOTIATION OF NEGOTIABLE RECEIPTS BY DELIVERY.] A negotiable receipt may be negotiated by delivery—

(a.) Where, by the terms of the receipt, the warehouseman undertakes to deliver the goods to the bearer, or

(b.) Where, by the terms of the receipt, the warehouseman undertakes to deliver the goods to the order of a specified person, and such person or a subsequent indorsee of the receipt has indorsed it in blank or to bearer.

Where, by the terms of a negotiable receipt, the goods are deliverable to bearer or where a negotiable receipt has been indorsed in blank or to bearer, any holder may indorse the same to himself or to any other specified person, and in such case the receipt shall thereafter be negotiated only by the indorsement of such indorsee.

It is not usual for warehouse receipts to be made to bearer, but as it seems clear that if a receipt were made in that form it should be negotiable by delivery it seemed wise to make provision for the case. The rule as to restrictive indorsement is also aimed rather to cover a possible contingency than a usual practice.

SECTION 38.—[NEGOTIATION OF NEGOTIABLE RECEIPTS BY INDORSEMENT.] A negotiable receipt may be negotiated by the indorse-

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ment of the person to whose order the goods are, by the terms of the receipt, deliverable. Such indorsement may be in blank, to bearer, or to a specified person. If indorsed to a specified person, it may be again negotiated by the indorsement of such person in blank, to bearer, or to another specified person. Subsequent negotiation may be made in like manner.

This section applies the law of bills and notes, as it is in fact applied by mercantile custom, to warehouse receipts.

SECTION 39.—[TRANSFER OF RECEIPTS.] A receipt which is not in such form that it can be negotiated by delivery may be transferred by the holder by delivery to a purchaser or donee.

A non-negotiable receipt cannot be negotiated, and the indorsement of such a receipt gives the transferee no additional right.

The three preceding sections follow the terminology of the Negotiable Instruments Law in distinguishing "negotiation" and transfer." Section 39 applies not only to the transfer of non-negotiable receipts, but also to the transfer without a necessary indorsement of negotiable receipts.

SECTION 40.—[WHO MAY NEGOTIATE A RECEIPT.] A negotiable receipt may be negotiated—

(a.) By the owner thereof, or

(b.) By any person to whom the possession or custody of the receipt has been entrusted by the owner, if, by the terms of the receipt, the warehouseman undertakes to deliver the goods to the order of the person to whom the possession or custody of the receipt has been entrusted, or if at the time of such entrusting the receipt is in such form that it may be negotiated by delivery.

This section and the next are of fundamental importance to the mercantile community. They state familiar law in regard to bills and notes and there is authority for them in the statutes making warehouse receipts and bills of lading negotiable and in well-recognized mercantile custom. It will be noticed that one who takes by trespass or a finder is not included within the description of those who may negotiate. To this extent the warehouse receipt is not made the equal of the bill of exchange in negotiability.

SECTION 41.—[RIGHTS OF PERSON TO WHOM A RECEIPT HAS BEEN NEGOTIATED.] A person to whom a negotiable receipt has been duly negotiated acquires thereby—

(a.) Such title to the goods as the person negotiating the receipt

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to him had or had ability to convey to a purchaser in good faith for value, and also such title to the goods as the depositor or person to whose order the goods were to be delivered by the terms of the receipt had or had ability to convey to a purchaser in good faith for value, and

(b.) The direct obligation of the warehouseman to hold possession of the goods for him according to the terms of the receipt as fully as if the warehouseman had contracted directly with him.

This section follows the mercantile theory of making the negotiable receipt represent not simply the title the person negotiating it had, but also whatever property the depositor had, that being what the receipt represented. Many states already have statutes making warehouse receipts negotiable. Mohun, 944; but these statutes have been so brief that they have been variously construed and have to some extent failed of their purpose. See Shaw *v.* Railroad Co. 101 U. S. 557; Hurt's Case, 99 Ala. 140; Bank *v.* Lee, 99 Ala. 496.

SECTION 42.—[RIGHTS OF PERSON TO WHOM A RECEIPT HAS BEEN TRANSFERRED.] A person to whom a receipt has been transferred but not negotiated, acquires thereby, as against the transferor, the title to the goods, subject to the terms of any agreement with the transferor.

If the receipt is non-negotiable such person also acquires the right to notify the warehouseman of the transfer to him of such receipt, and thereby to acquire the direct obligation of the warehouseman to hold possession of the goods for him according to the terms of the receipt.

Prior to the notification of the warehouseman by the transferor or transferee of a non-negotiable receipt, the title of the transferee to the goods and the right to acquire the obligation of the warehouseman may be defeated by the levy of an attachment or execution upon the goods by a creditor of the transferor, or by a notification to the warehouseman by the transferor or a subsequent purchaser from the transferor of a subsequent sale of the goods by the transferor.

So far as a non-negotiable receipt is concerned this states the rights at common law of any purchaser of bailed goods. Therefore the purchaser gets nothing by the warehouse receipt except evidence. In the case of a negotiable receipt the purchaser has the further right given by the next section.

SECTION 43.—[TRANSFER OF NEGOTIABLE RECEIPT WITHOUT INDORSEMENT.] Where a negotiable receipt is transferred for value

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by delivery, and the indorsement of the transferor is essential for negotiation, the transferee acquires a right against the transferor to compel him to indorse the receipt, unless a contrary intention appears. The negotiation shall take effect as of the time when the indorsement is actually made.

This follows the analogy of bills and notes. Crawford, Negot. Inst. Law, § 79.

SECTION 44.—[WARRANTIES ON SALE OF RECEIPT.] A person who for value negotiates or transfers a receipt by indorsement or delivery, including one who assigns for value a claim secured by a receipt, unless a contrary intention appears, warrants—

(a.) That the receipt is genuine,

(b.) That he has a legal right to negotiate or transfer it,

(c.) That he has knowledge of no fact which would impair the validity or worth of the receipt, and

(d.) That he has a right to transfer the title to the goods, and that the goods are merchantable or fit for a particular purpose whenever such warranties would have been implied, if the contract of the parties had been to transfer without a receipt the goods represented thereby.

This section except (d) follows the Negotiable Instruments Law. Crawford, § 115. (d) it is believed states the existing law.

SECTION 45.—[INDORSER NOT A GUARANTOR.] The indorsement of a receipt shall not make the indorser liable for any failure on the part of the warehouseman or previous indorsers of the receipt to fulfill their respective obligations.

Mercantile usage in regard to warehouse receipts differs from that in regard to bills and notes in the matter to which this section relates. It states the existing law even where statutes have made warehouse receipts and bills of lading negotiable. Shaw *v.* Railroad Co. 101 U. S. 557; Mida *v.* Geissmann, 17 Ill. App. 207.

SECTION 46.—[NO WARRANTY IMPLIED FROM ACCEPTING PAYMENT OF A DEBT.] A mortgagee, pledgee, or holder for security of a receipt who in good faith demands or receives payment of the debt for which such receipt is security, whether from a party to a draft drawn for such debt or from any other person, shall not by so doing be deemed to represent or to warrant the genuineness of such receipt or the quantity or quality of the goods therein described.

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There are several English decisions to the effect that the holder of a bill of exchange having a forged bill of lading as security is not liable to refund payment of the draft if he receives payment from the drawee. To the same effect are Hoffman *v.* Bank, 12 Wall. 181; Goetz *v.* Bank, 119 U. S. 551, and see Daniel on Neg. Inst. §§ 174, 175.

In Landa *v.* Lattin, 19 Tex. Civ. App. 246, however, without referring to these authorities, the court went to the extreme length of holding that the holder of a bill of lading taken for security on the discount of a draft succeeded to all the liabilities of his transferor, the seller of the goods, and was to be regarded as warranting the quality of the goods to the same extent as the seller. This decision, though opposed to both authority and reason, was soon followed in Finch *v.* Gregg, 126 N. C. 176, and Searles *v.* Smith Grain Co., 80 Miss. 688. A contrary decision was, however, rendered in Tolerton-Stetson Co. *v.* Anglo-California Bank, 112, Ia. 706, and more recently Landa *v.* Lattin has been overruled in its own state, Blaidsell Co. *v.* Citizens' Nat. Bank, 96 Tex. 626, but has nevertheless been subsequently followed in Alabama. Though these decisions all relate to bills of lading the same question may arise as to warehouse receipts and it seemed wise to provide for it.

SECTION 47.—[WHEN NEGOTIATION NOT IMPAIRED BY FRAUD, MISTAKE, OR DURESS.] The validity of the negotiation of a receipt is not impaired by the fact that such negotiation was a breach of duty on the part of the person making the negotiation, or by the fact that the owner of the receipt was induced by fraud, mistake, or duress to entrust the possession or custody of the receipt to such person, if the person to whom the receipt was negotiated, or a person to whom the receipt was subsequently negotiated, paid value therefor, without notice of the breach of duty, or fraud, mistake, or duress.

This section merely elaborates for the sake of clearness certain cases within the terms of Section 40.

SECTION 48.—[SUBSEQUENT NEGOTIATION.] Where a person having sold, mortgaged, or pledged goods which are in a warehouse and for which a negotiable receipt has been issued, or having sold, mortgaged, or pledged the negotiable receipt representing such goods, continues in possession of the negotiable receipt, the subsequent negotiation thereof by that person under any sale, or other disposition thereof to any person receiving the same in good faith, for value and without notice of the previous sale, mortgage, or pledge, shall have the same effect as if the first purchaser of the goods or receipt had expressly authorized the subsequent negotiation.

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This is copied from Section 25 (1) of the English Sale of Goods Act, where it applies to all sales of goods. It is of especial importance in the case of negotiable documents of title.

SECTION 49.—[NEGOTIATION DEFEATS VENDOR'S LIEN.] Where a negotiable receipt has been issued for goods, no seller's lien or right of stoppage in transitu shall defeat the rights of any purchaser for value in good faith to whom such receipt has been negotiated whether such negotiation be prior or subsequent to the notification to the warehouseman who issued such receipt of the seller's claim to a lien or right of stoppage in transitu. Nor shall the warehouseman be obliged to deliver or justified in delivering the goods to an unpaid seller unless the receipt is first surrendered for cancellation.

This perhaps goes beyond the existing law. Mechem on Sales, § 1507. See, however, Newhall *v.* Central Pac. R. R., 51 Cal. 345. The protection of dealings in negotiable receipts clearly requires that a vendor, who has by giving up possession of goods or warehouse receipts allowed negotiable receipts to be outstanding, should not be permitted to defeat one who buys such receipts.

PART IV.

CRIMINAL OFFENSES.

SECTION 50.—[ISSUE OF RECEIPT FOR GOODS NOT RECEIVED.] A warehouseman, or any officer, agent, or servant of a warehouseman, who issues or aids in issuing a receipt knowing that the goods for which such receipt is issued have not been actually received by such warehouseman, or are not under his actual control at the time of issuing such receipt, shall be guilty of a crime, and upon conviction shall be punished for each offense by imprisonment not exceeding five years, or by a fine not exceeding five thousand dollars, or by both.

To insure the fundamental basis on which the value of negotiable receipts must rest it seemed necessary to punish criminally any misrepresentation or fraud in regard to the existence of the goods behind the receipt. Other obvious frauds are aimed at by the following five sections.

SECTION 51.—[ISSUE OF RECEIPT CONTAINING FALSE STATEMENT.] A warehouseman, or any officer, agent, or servant of a warehouse-

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man, who fraudulently issues or aids in fraudulently issuing a receipt for goods knowing that it contains any false statement, shall be guilty of a crime, and upon conviction shall be punished for each offense by imprisonment not exceeding one year, or by a fine not exceeding one thousand dollars, or by both.

See note to Section 50.

SECTION 52.—[ISSUE OF DUPLICATE RECEIPTS NOT SO MARKED.] A warehouseman, or any officer, agent, or servant of a warehouseman, who issues or aids in issuing a duplicate or additional negotiable receipt for goods knowing that a former negotiable receipt for the same goods or any part of them is outstanding and uncancelled, without plainly placing upon the face thereof the word "Duplicate," except in the case of a lost or destroyed receipt after proceedings as provided for in section 14, shall be guilty of a crime, and upon conviction shall be punished for each offense by imprisonment not exceeding five years, or by a fine not exceeding five thousand dollars, or by both.

See note to Section 50.

SECTION 53.—[ISSUE FOR WAREHOUSEMAN'S GOODS OF RECEIPTS WHICH DO NOT STATE THAT FACT.] Where there are deposited with or held by a warehouseman goods of which he is owner, either solely or jointly or in common with others, such warehouseman, or any of his officers, agents, or servants who, knowing this ownership, issues or aids in issuing a negotiable receipt for such goods which does not state such ownership, shall be guilty of a crime, and upon conviction shall be punished for each offense by imprisonment not exceeding one year, or by a fine not exceeding one thousand dollars, or by both.

See note to Section 50.

SECTION 54.—[DELIVERY OF GOODS WITHOUT OBTAINING NEGOTIABLE RECEIPT.] A warehouseman, or any officer, agent, or servant of a warehouseman who delivers goods of the possession of such warehouseman, knowing that a negotiable receipt the negotiation of which would transfer the right to the possession of such goods is outstanding and uncancelled, without obtaining the possession of such receipt at or before the time of such delivery, shall, except in

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the cases provided for in sections 14 and 36, be found guilty of a crime, and upon conviction shall be punished for each offense by imprisonment not exceeding one year, or by a fine not exceeding one thousand dollars, or by both.

See note to Section 50.

SECTION 55.—[NEGOTIATION OF RECEIPT FOR MORTGAGED GOODS.] Any person who deposits goods to which he has not title, or upon which there is a lien or mortgage, and who takes for such goods a negotiable receipt which he afterwards negotiates for value with intent to deceive and without disclosing his want of title or the existence of the lien or mortgage shall be guilty of a crime, and upon conviction shall be punished for each offense by imprisonment not exceeding one year, or by a fine not exceeding one thousand dollars, or by both.

See note to Section 50.

PART V.

INTERPRETATION.

SECTION 56.—[WHEN RULES OF COMMON LAW STILL APPLICABLE.] In any case not provided for in this act, the rules of law and equity, including the law merchant, and in particular the rules relating to the law of principal and agent and to the effect of fraud, misrepresentation, duress or coercion, mistake, bankruptcy, or other invalidating cause, shall govern.

A similar provision is commonly inserted when an attempt is made to reduce to statute form a topic of the law, as in the Negotiable Instruments Law, or the Sale of Goods Act.

SECTION 57.—[INTERPRETATION SHALL GIVE EFFECT TO PURPOSE OF UNIFORMITY.] This act shall be so interpreted and construed as to effectuate its general purpose to make uniform the law of those states which enact it.

This section introduces a new and necessary principle of construction. It would be unfortunate for courts of each state to follow the general rule of con-

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struing the law with reference to previously existing rules in that state—possibly rules peculiar to that state. The courts should in view of this section consider not primarily the law previously existing in one state but in the states generally.

SECTION 58.—[DEFINITIONS.] (1.) In this act, unless the context or subject matter otherwise requires—

"Action" includes counterclaim, set-off, and suit in equity.

"Delivery" means voluntary transfer of possession from one person to another.

"Fungible goods" means goods of which any unit is, from its nature or by mercantile custom, treated as the equivalent of any other unit.

"Goods" mean chattels or merchandise in storage, or which has been or is about to be stored.

"Holder" of a receipt means a person who has both actual possession of such receipt and a right of property therein.

"Order" means an order by endorsement on the receipt.

"Owner" does not include mortgagee or pledgee.

"Person" includes a corporation or partnership or two or more persons having a joint or common interest.

To "purchase" includes to take as mortgagee or as pledgee.

"Purchaser" includes mortgagee and pledgee.

"Receipt" means a warehouse receipt.

"Value" is any consideration sufficient to support a simple contract. An antecedent or pre-existing obligation, whether for money or not, constitutes value where a receipt is taken either in satisfaction thereof or as security therefor.

"Warehouseman" means a person lawfully engaged in the business of storing goods for profit.

(2.) A thing is done "in good faith" within the meaning of this act, when it is in fact done honestly, whether it be done negligently or not.

The only one of these definitions requiring comment is that of "value," which follows the Negotiable Instruments Law and applies the rule generally prevailing in regard to bills and notes to warehouse receipts.

SECTION 59.—[ACT DOES NOT APPLY TO EXISTING RECEIPTS.] The provisions of this act do not apply to receipts made and delivered prior to the taking effect of this act.

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SECTION 60.—[INCONSISTENT LEGISLATION REPEALED.] All acts or parts of acts inconsistent with this act are hereby repealed.

SECTION 61.—[TIME WHEN THE ACT TAKES EFFECT.] This act shall take effect on the ——— day of ———, one thousand nine hundred and

SECTION 62.—[NAME OF ACT.] This act may be cited as the Warehouse Receipts Act.

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APPENDIX "C."

Address of the Committee on Resolutions Appointed by the Divorce Congress at Washington, D. C., February 19–22, 1906.

To the President and the Congress of the United States, and the Governors and Legislatures of the several States and Territories, and the Commissioners of the District of Columbia:

The great and constantly increasing number of divorces in the United States has aroused a general public interest which has resulted in a wide spread movement for their restriction. As one result of the discussion of this subject, there is a well founded belief that a part of this increase in divorces, attended with special evils and scandals, is due to the lack of a divorce law uniform throughout the nation.

The power to establish such uniform law has not been committed to the Federal Government by the Constitution, except for the District of Columbia and the territories, and the movement for restriction has therefore been in the direction of securing action of the several states in the passage of such law. In the message of President Roosevelt to the Congress of the United States on January 30, 1905 (sent at the instance of the Inter-Church conference and requesting the continuance of the collectoin of Divorce Statistics under Federal authority), he suggested such co-operation of the states, in this language:

"The institution of marriage is of course at the very foundation of our social organization, and all influences that affect that institution are of vital concern to the people of the whole country. There is a widespread conviction that the divorce laws are dangerously lax and indifferently administered in some of the states, resulting in a diminishing regard for the sanctity of the marriage relation. The hope is entertained that co-operation amongst the several states can be secured to the end that there may be enacted upon the subject of marriage and divorce uniform laws, containing all possible safeguards for the security of the family."

Acting on this suggestion of the President, Governor Pennypacker, of Pennsylvania, by the authority of its legislature, requested the co-operation of the other states in the assembling of a congress of delegates to consider the laws and decisions of the several states upon the subject of divorce, with a view of the drafting of a general law, to be submitted to the legislatures of the states, secur-

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ing as nearly as might be possible uniform statutes upon the subject of divorce throughout the nation. Delegates from forty states convened at a congress held in Washington in February of the present year. The District of Columbia, governed by a Federal Divorce Law, and the Territory of New Mexico were also represented. The Divorce Congress, after a full discussion lasting four days, reached its conclusions as to the principles on which it seemed practicable to obtain uniform divorce laws of the states, and these principles were expressed in a series of resolutions, which the congress directed to be embodied in a statute or law, to be presented at an adjourned meeting of the congress.

This draft of a law was submitted to the congress at its adjourned meeting held at Philadelphia on November 13, 1906, and after a discussion lasting through two days, the form or draft of the proposed law was finally settled, this congress, at the adjourned meeting not undertaking to make any essential departures from the resolutions adopted in February. The resolutions and the law as finally adopted, containing twenty-four sections, are appended hereto.

The Divorce Congress did not deem it advisable to attempt to regulate the mere details of procedure in divorce actions, and with a few exceptions such details were not embraced either in the resolutions or the Uniform Divorce Law. Two of these exceptions and the principal ones relate to the open public hearings and to publicity of records in divorce cases. Objection has been made to these provisions, on the ground of supposed injury to public morals; but after full consideration of the practice prevailing in the different States, the congress concluded almost unanimously that the advantages of a public and open hearing outweighed any of the dangers suggested, and that in the public interest such hearings were necessary in most of the states, in order to prevent a lax administration of the divorce laws.

The principal subjects covered by the resolutions and the Uniform Divorce Act relate to the important matters of: (1) the causes of annulment and divorce; (2) the establishment of the two kinds of divorce—limited as well as absolute, in those states where the former does not exist; (3) the adoption of a uniform rule governing the acquiring of jurisdiction in divorce actions; and, as intimately connected with this last subject, (4) the adoption of a uniform rule covering the subject of the faith and credit to be given to decrees of divorce obtained in other states. Annulments of marriages being judgments or decrees declaring marriages to have been originally illegal or void, are considered to be legally and reasonably distinguished from decrees of divorce which terminate an existing and admitted legal relation and are incorporated in the Uniform Divorce Act, because the divorce acts of all, or nearly all, of the states include provisions as to such annulments. The causes for annulment now recognized, either by statutes or by judicial decisions, and which are included in the act, are (1) impotency, not known at the time of the marriage; (2) consanguinity and affinity within the prohibited degrees; (3) existing marriage; (4) fraud, force, or coercion, and (5) insanity, unknown at the time of marriage, the last two being cases in which the marriage, although voidable at the instance of the injured party, may be subsequently confirmed. In this latter class, the marriage, if so confirmed, is not to be annulled. Another, and an important cause for annulment, has been added in the act and was approved at the adjourned session of the congress, viz., the marriage of a girl under sixteen and of a boy under eighteen,

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which may be annulled at the suit only of the injured party, unless confirmed by such party, after arriving at these respective ages. Each state fixes by statute or decision some limit of age, and these ages, fixed by the act, while raising the limits fixed by marriages at the common law, are not higher than the age fixed by statutes in many states protecting females against consent to intercourse. The social conditions now generally existing through the Union do not seem to be such as to call for the encouragement of marriages at an earlier age, and the evils likely to result generally from such immature marriages seem to require their absolute prohibition.

Limited divorces, or divorces from bed and board, were unanimously recommended by the congress and are provided for by the law, to be granted for the same causes as absolute divorce, at the option of the innocent and injured party, who is not to be compelled to ask for a dissolution of the marriage. This option will, in some states where the distinction does not exist, extend the relief of limited divorce to a large and increasing class, who on account of religious beliefs, conscientious scruples, or other sufficient reason, would not seek absolute divorce, and are therefore, in the states where the distinction does not exist, barred in many cases from a proper relief by legal or judicial separation. The congress recommended that such limited divorces should be retained where already existing and should be provided for in states where no such rights exist. One additional cause for limited divorce on the part of the wife (but not adopted as a cause for absolute divorce), is the hopeless insanity of the husband, occurring after marriage. This relief was not extended to the husband for the insanity of the wife, as it was recognized that such insanity might sometimes result from the physical effect upon the wife of the marriage relation itself, in which respect the spouses are not by nature on an equality.

As to uniformity in the causes for absolute divorce in the several states, the congress recognized that entire uniformity was not now attainable. The sovereign right of each state to the exercise of its judgment in the passage of laws relating to the status of its own citizens, and the conflict of views in the communities of the different states, on the dissolubility of the marriage tie, and the grounds for such dissolution, preclude the possibility of any universal agreement, at the present time, upon the causes for absolute divorce. But it was found at the congress that there was an agreement among a large number of the states in regard to these causes, and in view of this general concurrence the following resolution was adopted:

"This Congress, desiring to see the number of causes reduced rather than increased, recommends that no additional causes should be recognized in any state, and in those states where causes are restricted, no change is called for."

These causes for absolute divorce, thus generally recognized, have been incorporated in the Uniform Divorce Law, as follows: (1) Adultery, (2) Bigamy, (3) Conviction of crime in certain cases, (4) Extreme cruelty, (5) Wilful desertion for two years, (6) Habitual drunkenness for two years. The law annexes such qualifications to actions for bigamy, conviction of crime, and cruelty, as seem to be appropriate. These appear in the act itself.

Two features of the act remain, and, as appears from the discussions in the congress, were considered as the most important part of its work. They relate, *first*, to the general subject of the jurisdiction of the courts of a state to grant

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decrees of absolute divorce, and, *second*, as closely connected with this, to the recognition or effect to be given in one state to decrees of divorce obtained in another. There was a general conviction, that the growing increase of divorces, with their attendant evils, was, to a considerable extent, due to the misuse or fraudulent use, made by the residents of one state of the laws and courts of a sister state, for the sole purpose of obtaining divorces which could not be secured under the laws of their own state. Instances of divorces thus obtained have become sufficiently numerous to give them a specific characterization as "migratory" or "emigrant" divorces. Their increase within the last decade has to some extent been probably due to occasional instances of divorces of this character occurring among persons widely known for wealth or social station, as such cases not only familiarize the general public with such methods of procedure, but also, from the very eminence of the examples, tend to lower the general standard of public opinion by which such misuse of the laws of another state should be judged. To root out the scandals and evils of these migratory divorces was one of the main objects of the congress, and several of its resolutions were addressed to this subject. The sections of the Uniform Divorce Law which reach it are of two classes, those relating to jurisdiction and those relating to foreign decrees. The sections relating to jurisdiction over actions for divorce provide for a *bona fide* residence of one of the parties to the action for two years (except in cases of adultery or bigamy) in the state where the action is brought, when the cause for action arose in such state, and for a like term of residence of one of the parties in the state where action is brought when either has become a resident thereof since the cause of action arose, with the important proviso in the latter case that the cause of action must have been recognized in the State in which such party resided at the time the cause of action arose, as a ground for the same relief asked for in the action.

As to the effect in other states of decrees in "migratory divorce" cases, the provisions of the Massachusetts act were recommended by the congress and included in the act, to this effect: "*That if any inhabitant of this state shall go into another state, territory or country, in order to obtain a decree of divorce for a cause which occurred while the parties resided in this state, or for a cause which is not ground for a divorce under the laws of this state, a decree so obtained shall be of no force or effect in this state.*"

The vital subject of the effect to be given in one state to a decree of divorce obtained in good faith in another state, by a *bona fide* resident of the latter state, was also acted on at the adjourned session of the congress, and such action became necessary because of the decision of the United States Supreme Court in the *Haddock* case, rendered after the holding of the first session of the congress. By this decision it was declared that the faith and credit to be given by one state to the decrees of divorce obtained in another, where the court did not have jurisdiction over both parties, depended upon the laws of comity recognized in each state, and did not come within the protection of the full faith and credit clause of the Federal Constitution, unless the action was brought and the divorce obtained in the state of the matrimonial domicile, and (it would seem) by the innocent party who remained there. This rule removes from the protection of the Federal Constitution and the establishment of a uniform rule thereunder, all that class of cases where either the innocent party or both parties have removed

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from the matrimonial domicile to another state, and have become *bona fide* residents thereof. To establish a uniform law which shall reach all cases not covered by the United States Supreme Court decisions, and remove, as far as possible, the scandal to public morals, as well as the reproach to American jurisprudence, arising from a man and woman being held to be married in one state, and not married in another, the congress adopted two principles or rules, one relating to jurisdiction over defendants not personally served with process in the state in which action is brought, the other relating to the effect of foreign decrees.

Jurisdiction for divorce against non-residents, under varying limitations and restrictions, is not only the practice to some extent in every state of the Union which allows divorces, but is the necessary result and outcome of what has been called the American doctrine, allowing the wife to acquire a separate domicile, when the husband has been guilty of a matrimonial offense entitling her to a divorce. From the earliest times and in the courts of every American state, as well as in the United States Supreme Court, the doctrine that the wife in such cases must follow the husband into his domicile for relief, has been rejected as not only unequal and unjust, but as being practically a denial of justice in many cases. And in a few states the simple claim of the wife that a matrimonial offense justifying a divorce has been committed, entitles her *prima facie* to the separate domicile for the purpose of trying the question. This doctrine of separate domicile of the wife when she has a right to divorce is too firmly rooted in American jurisprudence to be disturbed, even though it has brought in its train as a logical result inconvenience and uncertainty, arising from the diverse effect accorded to such decrees outside of the state which granted them, where the defendant was not served within its jurisdiction. But an examination of the laws and decisions of the several states discloses that over ninety-five per cent. of the states (all but three, or perhaps but two) do, on principles of comity and under certain restrictions, recognize as valid, decrees obtained by *bona fide* residents in other states, against nonresidents of such state. This recognition is based upon the essential justice of according to other states the same right and privilege which each state exercises for itself. Actual notice of the suit to the nonresident, where practicable, and an opportunity to defend, are conditions imposed by natural justice, and the Uniform Divorce Law, following the resolution of the congress, provides for giving this actual notice out of the state to the defendant, where practicable, in addition to publication within the state. This publication is in all cases required by the act for the purpose of preventing secrecy. The details of the method of working out this essential principle of serving out of the state are, however, to be left to each state. But when these conditions are substantially complied with, and jurisdiction is obtained over the defendant by personal service within or without the state, where practicable, the Uniform Divorce Act makes the decree conclusive, by the provision: "*Full faith and credit shall be given in all courts of this state to a decree of annulment of marriage or divorce obtained in another state when the jurisdiction of such court was obtained in the manner and in substantial conformity with the conditions prescribed by sections* 7, 8, 9, *and* 10 *of this act*" These are the sections relating to jurisdiction. From the benefit of this recognition, however, an express proviso excludes all the migratory divorces which come within the purview of the Massachusettst act above referred to.

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For the reason that the remarriage of divorced persons often follows so scandalously close upon a divorce, as to arouse suspicions of collusion or bad faith, and also because the marriage bond should not be finally dissolved until after full opportunity to prevent mistakes or fraud, the sense of the congress was that a law suspending the absolute effect of the decree for a year, which has worked favorably in a few states (Wisconsin, Illinois, and California) should be adopted by all of the states. The act therefore contains provisions—sections 16 and 17—for a decree *nisi* in the first instance, to become absolute in one year. In the interval the court, of its own motion or on application by any party interested or not, may, for sufficient cause, prevent the decree *nisi* from taking effect. This gives an opportunity for such investigation of the case as the public interest or the rights of the parties may require, before the final dissolution of the marriage bond.

It is fully realized that the law now proposed is not a complete or ideal uniform divorce law, but that it is only the best law in that direction which it now seems practicable to obtain.

In the control of divorce and its attendant evils, laws perform an important, but only a subordinate part. The practical remedy for controlling the evil is the elevation of the general moral standard in all our communities, not only as to the sundering of the tie, intended to be lifelong and indissoluble, but also as to marriage itself and the assumption of its obligations.

For this supreme work there must be enlisted the personal interest and influence of all American men and women who cherish the sanctity of marriage and would preserve the stability and happiness of the home, and their support must be given to the forces and influences which control society and mould public opinion—the fountain and source of our laws. To all who in official station or in the church, on the platform, or through the public press, share in forming an enlightened public opinion on a question of vital interest to the American nation, we confidently appeal for aid and co-operation in this first normal effort toward the settlement, by the states themselves, in the form of law, of some of the questions pressing for solution.

The substantial unanimity with which the resolutions and the act have been adopted by the congress encourages the hope that the provisions of the Uniform Divorce Law, substantially in the form now submitted, may ultimately be approved by all of the states, or by so many of them as to secure a decided advance in the direction of reformation of the American Laws relating to the vital question of marriage and divorce.

The Committee on Resolutions appointed at the Divorce Congress respectfully submit, by its direction, this address on behalf of the congress, with copies of its resolutions of the Uniform Divorce Law, and of the laws relating to the collection of Statistics of Marriage and of Divorce.

WALTER GEORGE SMITH, 1006 Land Title Building, Philadelphia, Pa., *Chairman.*
F. L. SIDDONS, ESQ., Washington, D. C.
GEORGE W. WILLIAMS, ESQ., Dublin, Ga.
JOHN C. RICHBERG, ESQ., Chicago, Ill.
THAD. M. TALCOTT, ESQ., South Bend, Ind.

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CHARLES F. LIBBY, ESQ., Portland, Me.
MILTON G. URNER, ESQ., Frederick, Md.
HON. EDWIN A. JAGGARD, St. Paul, Minn.
HON. SENECA N. TAYLOR, St. Louis, Mo.
RALPH W. BRECKENRIDGE, ESQ., Omaha, Neb.
V. CHANCELLOR JOHN R. EMERY, Newark, N. J.
DEAN E. W. HUFFCUT, Ithaca, N. Y.
RT. REV. JOHN SHANLEY, D. D., Fargo, N. D.
OTTO J. KRAEMER, ESQ., Portland, Ore.
G. W. CASE, ESQ., Watertown, S. D.
RT. REV. THOMAS F. GAILOR, D. D., Memphis, Tenn.
JOHN GARLAND POLLARD, ESQ., Richmond, Va.

GOV. SAMUEL W. PENNYPACKER, Harrisburg, Pa., President.
HON. AMASA M. EATON, Providence, R. I., Vice President.
C. LARUE MUNSON, ESQ., Williamsport, Pa., Vice President.
R. T. BARTON, ESQ., Winchester, Va., Vice President.
ALBERT R. DABNEY, ESQ., Oakland, Cal., Vice President.
HON. WILLIAM H. STAAKE, City Hall, Philadelphia, Pa., Secretary.

Committee on Resolutions.

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RESOLUTIONS ADOPTED BY THE NATIONAL CONGRESS ON UNIFORM DIVORCE LAWS

At its Sessions at Washington, D. C., February 19–22, 1906.

I. AS TO FEDERAL LEGISLATION.

1. It is the sense of the Congress that no Federal divorce law is feasible, and that all efforts to secure the passage of a constitutional amendment—a necessary prerequisite—would be futile.

II. AS TO STATE LEGISLATION.

1. All suits for divorce should be brought and prosecuted only in the state where the plaintiff or the defendant had a *bona fide* residence.

2. When the courts are given cognizance of suits where the plaintiff was domiciled in a foreign jurisdiction at the time the cause of complaint arose, it should be insisted that relief will not be given unless the cause of divorce was included among those recognized in such foreign domicile.

When the courts are given cognizance of suits where the defendant was domiciled in a foreign jurisdiction at the time the cause of complaint arose, it should be insisted that relief by absolute divorce will not be given unless the cause of divorce was included among those recognized in such foreign domicile.

3. Where jurisdiction for absolute divorce depends upon the residence of the plaintiff, not less than two years' residence should be required on the part of the plaintiff who has changed his or her state domicile since the cause of divorce arose.

Where jurisdiction for absolute divorce depends upon the residence of the defendant, not less than two years' residence should be required on the part of the defendant who has changed his or her state domicile since the cause of divorce arose.

4. An innocent and injured party, husband or wife, seeking a

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divorce, should not be compelled to ask for a dissolution of the bonds of matrimony, but should be allowed, at his or her option, at any time, to apply for a divorce from bed and board. Therefore, divorces *a mensa* should be retained where already existing, and provided for in states where no such rights exist.

5. The causes for divorce existing by legislative enactment may be classed into groups that would be approved by the common consent of all the communities represented in this Congress, or at least substantially so. These causes should be restricted to offenses by one party to the marriage contract against the other of so serious a character as to defeat the objects of the marital relation; and they should never be left to the discretion of a court, but in all cases should be clearly and specifically enumerated in the statute. Uniformity in this branch of the law is much to be desired; but the evils arising from diverse causes in the different states will be very greatly abated if migratory divorces are prohibited.

6. While the following causes for annulment of the marriage contract, for divorce from the bonds of matrimony, and for legal separation or divorce *a mensa* seem to be in accordance with the legislation of a large number of American states, this Congress, desiring to see the number of causes reduced rather than increased, recommends that no additional causes should be recognized in any state; and in those states where causes are restricted, no change is called for:

A.—Causes for Annulment of the Marriage Contract.

1. Impotency.
2. Consanguinity and affinity, properly limited.
3. Existing marriage.
4. Fraud, force, or coercion.
5. Insanity, unknown to the other party.

B.—Causes for Divorce—*a. v. m.*

1. Adultry.
2. Bigamy.
3. Conviction of crime in certain classes of cases.
4. Intolerable cruelty.
5. Wilful desertion for two years.
6. Habitual drunkenness.

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C.—CAUSES FOR LEGAL SEPARATION, OR DIVORCE—*a. m.*

1. Adultery.
2. Intolerable cruelty.
3. Wilful desertion for two years.
4. Hopeless insanity of husband.
5. Habitual drunkenness.

7. If conviction for crime should be made a cause for divorce, it should be required that such conviction has been followed by a continuous imprisonment for at least two years, or in case of indeterminate sentence, one year; and that such conviction has been the result of trial in some one of the states of the Union, or in a Federal court, or in some one of the countries or courts subject to the jurisdiction of the United States, or in some foreign country granting a trial by jury, followed by an equally long term of imprisonment.

8. A decree should not be granted *a. v. m.* for insanity arising after marriage.

9. In those states where desertion is a cause for divorce, it should never be recognized as a cause unless it is wilful and is persisted in for a period of at last two years.

10. A divorce should not be granted unless the defendant has been given full and fair opportunity by notice brought home to him to have his day in court, when his residence is known or can be ascertained.

11. Any one named as co-respondent should in all cases be given an opportunity to intervene.

12. Hearings and trials should always be before the court, and not before any delegated representative of it; and in all uncontested divorce cases, and in any other divorce case where the court may deem it necessary or proper a disinterested attorney should be assigned by the court, actively to defend the case.

13. A decree should not be granted unless the cause is shown by affirmative proof, aside from any admissions on the part of the respondent.

14. A decree dissolving the marriage tie so completely as to permit the remarriage of either party should not become operative until the lapse of a reasonable time after hearing or trial upon the merits of the cause. The Wisconsin, Illinois, and California rule of one year is recommended.

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15. In no case should the children born during coverture be bastardized, excepting where they are the offspring of bigamous marriages or the impossibility of access by the husband has been proved.

16. Each state should adopt a statute embodying the principle contained in the Massachusetts act, which is as follows: "If an inhabitant of this Commonwealth goes into another state or country to obtain a divorce for a cause which occurred here while the parties resided here, or for a cause which would not authorize a divorce by the laws of this Commonwealth, a divorce so obtained shall be of no force or effect in this Commonwealth."

17. Fraud or collusion in obtaining or attempting to obtain divorces should be made statutory crimes by the criminal code.

These resolutions were then referred to a committee of seventeen members of the Congress to prepare and report an act designed to carry them into effect. That act was prepared and submitted to the adjourned session held in Philadelphia, by which it was adopted and it is submitted herewith.

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UNIFORM DIVORCE LAWS, ADOPTED BY THE DIVORCE CONGRESS, AT PHILADELPHIA, PA., NOV. 13-14, 1906.

AN ACT

Regulating annulment of marriage and divorce.

Annulment, causes for.

SECTION 1. *Be it enacted, etc.*, That a marriage may be annulled for any of the following causes existing at the time of the marriage:

Impotency, etc.

a. Incurable physical impotency, or incapacity for copulation, at the suit of either party: *Provided*, That the party making the application was ignorant of such impotency or incapacity at the time of the marriage.

Consanguinity, etc.

b. Consanguinity or affinity according to the table of degrees established by law, at the suit of either party; but when any such marriage shall not have been annulled during the lifetime of the parties the validity thereof shall not be inquired into after the death of either party.

Former marriage.

c. When such marriage was contracted while either of the parties thereto had a husband or wife living, at the suit of either party.

Fraud, etc.

d. Fraud, force, or coercion, at the suit of the innocent and injured party, unless the marriage has been confirmed by the acts of the injured party.

Insanity.

e. Insanity of either party, at the suit of the other, or at the suit of the committee of the lunatic, or of the lunatic on regaining reason, unless such lunatic, after regaining reason, has confirmed the marriage: *Provided*, That where the party *compos mentis* is the applicant, such party shall have been ignorant of the other's insanity at the time of the marriage, and shall not have confirmed it subsequent to the lunatic's regaining reason.

Proviso.

Non-age of wife.

f. At the suit of the wife when she was under the age of sixteen years at the time of the marriage, unless such marriage be confirmed by her after arriving at such age.

Non-age of husband.

g. At the suit of the husband when he was under the age of eighteen at the time of the marriage, unless such marriage be confirmed by him after arriving at such age.

Divorce.

SECTION 2. Divorce shall be of two kinds:

A vinculo.

a. Divorce from the bonds of matrimony, or divorce *a vinculo matrimonii*.

A mensa.

b. Divorce from bed and board, or divorce *a mensa et thoro*.

Divorce a vinculo, causes for.

SECTION 3. The causes for divorce from the bonds of matrimony shall be:

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a. Adultery. Adultery.

b. Bigamy, at the suit of the innocent and injured party to the first marriage. Bigamy.

c. Conviction and sentence for crime by a competent court having jurisdiction, followed by a continuous imprisonment for at least two years, or in the case of indeterminate sentence, for at least one year: *Provided*, That such conviction has been the result of trial in some one of the states of the United States, or in a Federal Court, or in some one of the territories, possessions, or courts subject to the jurisdiction of the United States, or in some foreign country granting a trial by jury, followed by an equally long term of imprisonment. Conviction, etc., for crime. Proviso.

d. Extreme cruelty, on the part of either husband or wife, such as to endanger the life or health of the other party or to render cohabitation unsafe. Extreme cruelty.

e. Wilful desertion for two years. Desertion.

f. Habitual drunkenness for two years. Drunkenness.

SECTION 4. The causes for divorce from bed and board shall be: Divorce a mensa, causes for.

a. Adultery. Adultery.

b. Bigamy, at the suit of the innocent and injured party to the first marriage. Bigamy.

c. Conviction and sentence for a crime by a competent court having jurisdiction, followed by a continuous imprisonment for at least two years, or in the case of indeterminate sentence, for at least one year: *Provided*, That such conviction has been the result of trial in some one of the States of the United States, or in a Federal Court, or in some one of the territories, possessions, or courts subject to the jurisdiction of the United States, or in some foreign country granting a trial by jury, followed by an equally long term of imprisonment. Conviction, etc., for crime. Proviso.

d. Extreme cruelty, on the part of either husband or wife, such as to endanger the life or health of the other party or to render cohabitation unsafe. Extreme cruelty.

e. Wilful desertion for two years. Desertion.

f. Habitual drunkenness for two years. Drunkenness.

g. Hopeless insanity of the husband. Insanity of husband.

SECTION 5. No decree for divorce shall be granted if it appears to the satisfaction of the court that the suit has been brought by collusion, or that the plaintiff has procured or connived at the offense charged, or has condoned it, or has been guilty of adultery not condoned. Bars to divorce.

SECTION 6. The ..... court of this state shall have and entertain jurisdiction of all actions for annulment of marriage, or for divorce. Jurisdiction, in what courts.

SECTION 7. For purposes of annulment of marriage, jurisdiction may be acquired by personal service upon the defendant within this state when either party is a *bona fide* resident of this state at the time of the commencement of the action. Jurisdiction, by personal service. In actions for annulment.

SECTION 8. For purposes of divorce, either absolute or from bed and board, jurisdiction may be acquired by personal service upon the defendant within this state, under the following conditions: In actions for divorce.

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Exception.

a. When, at the time the cause of action arose, either party was a *bona fide* resident of this state, and has continued so to be down to the time of the commencement of the action; except that no action for absolute divorce shall be commenced for any cause other than adultery or bigamy, unless one of the parties has been for the two years next preceding the commencement of the action a *bona fide* resident of this state.

Proviso.

b. When, since the cause of action arose, either party has become, and for at last two years next preceding the commencement of the action has continued to be, a *bona fide* resident of this state: *Provided*, The cause of action alleged was recognized in the jurisdiction in which such party resided at the time the cause of action arose, as a ground for the same relief asked for in the action in this state.

Jurisdiction, by publication.

SECTION 9. When the defendant cannot be served personally within this State, and when at the time of the commencement of the action the plaintiff is a *bona fide* resident of this state, jurisdiction for the purpose

In actions for annulment.

of annulment of marriage may be acquired by publication, to be followed, where practicable, by service upon or notice to the defendant without this state, or by additional substituted service upon the defendant within this state, as prescribed by law.

In actions for divorce.

SECTION 10. When the defendant cannot be served personally within this state, and when at the time of the commencement of the action the plaintiff is a *bona fide* resident of this state, jurisdiction for the purpose of divorce, whether absolute or from bed and board, may be acquired by publication, to be followed where practicable by service upon or notice to the defendant without this state, or by additional substituted service upon the defendant within this state, as prescribed by law, under the following conditions:

Exception.

a. When, at the time the cause of action arose, the plaintiff was a *bona fide* resident of this state, and has continued so to be down to the time of the commencement of the action; except that no action for absolute divorce shall be commenced for any cause other than adultery or bigamy, unless the plaintiff has been for the two years next preceding the commencement of the action a *bona fide* resident of this state.

Proviso.

b. When, since the cause of action arose, the plaintiff has become, and for at least two years next preceding the commencement of the action, has continued to be, a *bona fide* resident of this state: *Provided*, The cause of action alleged was recognized in the jurisdiction in which the plaintiff resided at the time the cause of action arose, as a ground for the same relief asked for in the action in this state.

Particeps criminis.

SECTION 11. Any one charged as a *particeps criminis* shall be made a party, upon his or her application to the court, subject to such terms and conditions as the court may prescribe.

Hearings and trials.

SECTION 12. All hearings and trials shall be had before the court, and not before a master, referee, or any other delegated representative, and shall in all cases be public.

Attorney, appointment of.

SECTION 13. In all uncontested cases, and in any other case where the court may deem it necessary or proper, a disinterested attorney may be assigned by the court actively to defend the case.

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Proof required.

SECTION 14. No decree for annulment of marriage, or for divorce, shall be granted unless the cause is shown by affirmative proof aside from any admissions on the part of the defendant.

Impounding of record, etc.

SECTION 15. No record or evidence in any case shall be impounded, or access thereto refused.

Decrees nisi.

SECTION 16. If after the hearing of any cause, or after a jury trial resulting in a verdict for the plaintiff, the court shall be of opinion that the plaintiff is entitled to a decree annulling the marriage, or to a decree for divorce from the bonds of matrimony, a decree *nisi* shall be entered.

Absolute decrees.

SECTION 17. A decree *nisi* shall become absolute after the expiration of one year from the entry thereof, unless appealed from or proceedings for review are pending, or the court before the expiration of said period for sufficient cause, upon its own motion, or upon the application of any party, whether interested or not, otherwise orders; and at the expiration of one year such final and absolute decree shall then be entered upon application to the court by the plaintiff, unless prior to that time cause be shown to the contrary.

Decrees a mensa.

SECTION 18. In all cases of divorce from bed and board for any of the causes specified in section 4 of this act, the court may decree a separation forever thereafter, or for a limited time, as shall seem just and reasonable, with a provision that in case of a reconcilation at any time thereafter, the parties may apply for a revocation or suspension of the decree; and upon such application the court shall make such order as may be just and reasonable.

Former name of wife.

SECTION 19. The court upon granting a divorce from the bonds of matrimony to a woman may allow her to resume her maiden name, or the name of a former deceased husband.

Children, legitimacy of. In action by wife.

SECTION 20. In an action brought by the wife, the legitimacy of any child born or begotten before the commencement of the action shall not be affected.

In action by husband.

SECTION 21. In an action brought by the husband, the legitimacy of any child born or begotten before the commission of the offence charged shall not be affected; but the legitimacy of any other child of the wife may be determined as one of the issues of the action. All children begotten before the commencement of the action shall be presumed to be legitimate.

Foreign decrees.

Of other states.

SECTION 22. Full faith and credit shall be given in all the courts of this state to a decree of annulment of marriage or divorce by a court of competent jurisdiction in another state, territory, or possession of the United States when the jurisdiction of such court was obtained in the manner and in substantial conformity with the conditions prescribed in sections 7, 8, 9, and 10 of this act. Nothing herein contained shall be construed to limit the power of any court to give such effect to a decree of annulment or divorce by a court of a foreign country as may be justified by the rules of international comity: *Provided*, That if any inhabitant of this state shall go into another state, territory, or country in order to obtain a decree of divorce for a cause which occurred while the parties resided in this state, or far a cause which is not ground for divorce under

Of foreign countries. Proviso. Evasion of laws of this State.

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the laws of this state, a decree so obtained shall be of no force or effect in this state.

Repealing clause.

SECTION 23. The following acts of Assembly and parts of acts, viz: ..... and all other acts and parts of acts of Assembly of this state, general, special, or local, inconsistent with this act, be and the same are hereby repealed:

Proviso.

Provided, That nothing in this act contained shall affect or apply to any actions for annulment of marriage, or for divorce, now pending.

When act shall take effect.

SECTION 24. This act shall take effect on the.....day of..... ....., A. D., ...

AN ACT

Providing for return of statistics relating to divorce proceedings.

SECTION 1. *Be it enacted, etc.*, That the clerk of every court having jurisdiction of divorce proceedings shall, on or before the first day of February in each year, make return to the Secretary of the State Board of Health (or other designated state official), upon suitable blank forms, to be provided by the state, of each suit for annulment of marriage or divorce brought or acted upon in said court during the preceding calendar year, specifying in regard to each case:

1. The record number.
2. Full names of plaintiff and defendant.
3. Age of each.
4. Color of each.
5. Occupation of each.
6. Date of marriage.
7. Place of marriage.
8. Residence of each at time of marriage.
9. Date of separation.
10. Date of filing the libel (or bill).
11. The alleged cause or causes for annulment or divorce.
12. Whether intemperance was a direct or indirect cause.
13. Kind of relief prayed for.
14. Residence of each at time of suit brought.
15. Manner of service of summons (or subpœna).
16. Whether the suit was contested or not.
17. Date of decree.
18. Nature of decree.
19. Final disposition of case.
20. Whether alimony was asked—and granted.
21. Number of children by the marriage.
22. Number of children affected by the decree.
23. If cross bill was filed, a similar return relating thereto.

For such returns each clerk shall receive the following fees (each state to fix its own fees); and upon neglect or refusal to make such returns,

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such clerk shall, for each such neglect or refusal, forfeit and pay the sum of $100, for the use of the proper county; to be collected as debts of like amounts are now collectible.

And the Secretary of the State Board of Health (or other designated state official) shall annually prepare, from said returns, abstracts, and tabular statements of the facts relative to divorce in each county, and embody them, with the necessary analysis, in his annual report to the state.

AN ACT

Providing for return of marriage statistics.

SECTION 1. *Be it enacted, etc.*, That the Marriage License Clerk (or other designated official) of each county shall, on or before the first day of February of each year, return to the Secretary of the State Board of Health (or other designated state official), upon suitable blank forms, to be provided by the state, an abridged statement of all marriage licenses issued by him during the preceding calendar year, specifying in each case:

1. Record number and date of the license.
2. Full names of the husband and wife.
3. Residence of each party.
4. The color of each party.
5. The age of each party.
6. The occupation of each party.
7. Date of marriage.
8. Place of marriage.
9. By whom the ceremony was performed.
10. Number of former marriages and divorces.
11. Names of parents or guardians where either party is under age.

For such returns each clerk shall receive the following fees (each state to fix its own fees); and upon neglect or refusal to make such returns, such clerk shall, for each such neglect or refusal, forfeit and pay the sum of $100 for the use of the proper county; to be collected as debts of like amount are now collectible.

And the Secretary of the State Board of Health (or other designated state official) shall annually prepare, from said returns, abstracts and tabular statements of the facts relating to marriage in each county, and embody them, with the necessary analysis, in his annual report to the state.

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EXHIBIT "D."

A summary of the cases decided during the last year in the states that have adopted the Uniform Negotiable Instruments Law.

ROUSE *v.* WOOTEN, 53 S. E. 430, NORTH CAROLINA, MARCH 20, 1906.

A surety on a note is not entitled to notice of dishonor under the N. I. L., Rev. 1905, § 2239, nor is such a surety an indorser under N. I. L., § 2213, but he is primarily liable, within N. I. L., § 2342 (Crawford Annotated Negotiable Instruments Law, §§160, 113, 3).

COMMERCIAL NATIONAL BANK *v.* ZIMMERMAN, 77 N. E. 1020, 185 N. Y. 210, CT. APP. N. Y., MAY 15, 1906.

Where a demand note was endorsed without consideration, for the accommodation of the maker, and its payment was secured by the deposit of certain securities, and two years after the making of the note the plaintiff complained to the indorser of its non-payment, and afterwards wrote twice a year that the maker was in default in the payment of interest, but no steps were taken to charge the indorser, by presentment of the note for payment until more than three years had elapsed, the presentment was not within a reasonable time, under the N. I. L., 1897, c, 612, §§ 4, 131.

This case abrogates the distinction heretofore made in New York between notes or bills payable on demand and bearing interest and those payable on demand merely. See Merritt *vs.* Todd, 23 N. Y. 28, and Parker *vs.* Stroud, 98 N. Y. 379.

PLOVER SGS. BK. *v.* MOODIE, 110 N. W. 29, IOWA, DECEMBER 15, 1906.

Under Code Supp. § 3060, a 185, a 71, a 193, (Crawf., Ann. N. I. L. §§ 321, 131, 4), where a check was indorsed to a bank and was forwarded to various banks for collection, in accordance with the regular custom of the business, sufficient diligence was held to have

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been exercised to charge the indorser, although demand might have been more promptly made if other and extraordinary means had been resorted to.

MAYERS *v.* MCRIMMON, 53 S. E. 447, NORTH CAROLINA, MARCH 27, 1906.

The holder of a draft, in the absence of proof of indorsement by the payee, is not a bona fide purchaser for value, under the N. I. L., Rev. 1905, §§ 2198, 2208, 2340 (Crawford Annotated Negotiable Instruments Law, §§ 79, 98, 6).

GERMANIA NAT. BK. *v.* MARINER, 109 N. W. 574, WISCONSIN, NOVEMBER 7, 1906.

A negotiable note made by the Northwestern Straw Works was signed:

"The Northwestern Straw Works,
"E. R. Stillman, Treas.,
"John W. Mariner"

by Mariner, the secretary of the corporation, who neglected to add the word "secretary." *Held*, Under laws 1899, c. 356, § 1675–20–17–3 (Crawf. Ann. N. I. L., §§ 39–36–113), Mariner was not personally liable.

SEATTLE SHOE CO. *v* PACKARD, 86 PAC. 845, WASHINGTON, AUGUST 29, 1906.

The drawees of a bill of exchange, discounted by plaintiff for the drawers' benefit, were not liable thereon prior to acceptance, under Laws 1899, c. 149, § 18 (Crawf. Ann. N. I. L., § 37). Under Laws 1899, c. 149, § 132 (Crawf. Ann. N. I. L., § 220), the acceptance of a bill must be in writing and signed by the drawee.

HIBBS *v.* BROWN, 98 N. Y. SUPP. 353, SUPREME COURT, APRIL 6, 1906.

Bonds issued by a joint stock association, secured by a trust deed and payable to bearer, are negotiable, under Laws, 1897, c. 612, §§ 20, 22, although by their express terms the stockholders of the association are free from individual liability for payment of the bonds and the interest thereon, liability being confined to the security and to the president and treasurer, known by the plaintiff

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to be accommodation paper, without proof of execution by the president and treasurer, under authority from their corporation, does not bind the corporation.

(The N. I. L. is not mentioned. See § 39.)

KERBY *v.* RUEGAMER, 107 APP. DIV. 491, NEW YORK, SEPTEMBER 29, 1905.

Under § 39 of the N. I. L., the makers of a negotiable promissory note signing as "trustees," without further disclosing their principal, the payee knowing who it was, are held not to be individually liable.

FIRST NATIONAL BK. OF LISBON *v.* BK. OF WYNDMERE, 108 N. W. 546, N. DAKOTA, JUNE 28, 1906.

The plaintiff bank was the drawee of a forged check which it paid without detecting the forgery. Upon suit against the defendant bank to recover the money so paid: *Held*, in the absence of evidence that the defendant had been misled or prejudiced by the plaintiff's mistake, the plaintiff can recover.

Although the N. I. L. has been in force in this State since 1899, it is not referred to in this opinion. See Crawf. Ann. N. I. L., § 42.

JAMIESON *v.* HEIM, 86 PAC. 165, WASHINGTON, JULY 20, 1906.

A draft was made payable to A. B., which came into the possession of another man of the same name as the defendant. He procured an introduction to a bank which then cashed the draft for him. He deposited part of it in this bank and a draft or check upon it came to the plaintiff in due course. It was held that the purchaser took it free of equities, under § 52 of the Washington N. I. L. (Crawf. Ann. N. I. L., § 42).

SALEN *v.* BANK OF THE STATE OF NEW YORK, 97 N. Y. SUPP. 361, SUPREME COURT, JANUARY 19, 1906.

An agent was authorized to indorse checks received from customers payable to the principal, and to deposit them in a designated bank for collection for the principal's account. He indorsed some such checks in his principal's name and deposited them with a broker as margins on a personal speculative stock account. The broker deposited the checks in a bank, which received them, and

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paid the proceeds thereof to him, in good faith. *Held:* The indorsements made by the agent were not forgeries under Laws 1897, c. 612, § 42, and therefore the bank receiving these indorsed checks and paying the proceeds to the broker in good faith is not liable to the principal as for a conversion of the checks.

ORIENTAL BANK *v.* GALLO, 98 N. Y. SUPP. 561, SUPREME COURT, APRIL 27, 1906.

A holder of a check under a forged indorsement indorsed it to a bank and received the amount thereof, which amount was paid to the bank by the drawee, the plaintiff, which, on discovering the forgery, sued to recover the amount paid. *Held:* That by his indorsement of the check the indorser warranted the genuineness of the prior forged indorsement, and on discovery of the forgery is liable to make good the amount he has received on the check.

(The N. I. L. of 1897, c. 612, was not cited. See § 42, and Tolman *vs.* Am. National Bank, 48 At. 480 or 22 R. I. 462.)

PEOPLE'S NATIONAL BANK *v.* SCHEPFLIN, 62 ATL. 333, NEW JERSEY, NOVEMBER 13, 1905.

A note executed by a married woman for her husband's accommodation, unenforceable in New Jersey because of Gen. St., p. 2017, § 5, prohibiting liability of a married woman as surety, or upon the default or liability of another, is not made valid by the N. I. L. (P. L. 1902, p. 583, Crawf. § 50).

HOVER *v.* MAGLEY, 96 N. Y. SUPP. 925, SUPREME COURT, NOVEMBER, 1905.

In an action on a note of a married woman and her husband, an answer stating that the note was without consideration as to the wife, being given for a pre-existing debt of the husband, was held to be a good defense, following Sutherland *vs.* Mead, 80 N. Y. Supp. 507, and Roseman *vs.* Mahony, 83 N. Y. Supp. 749, notwithstanding the N. I. L. of 1897, c. 612, §§ 51, 52, and 55.

See contra, Brewster *vs.* Schrader, 26 Misc. Rep. 480 (1899). This question will have to be carried to the Court of Appeals in New York before the uniformity which is the object of the N. I. L. can be secured, by reversal of this case. See the case of Sutherland *vs.* Mead, previously commented upon adversely in my address as President in 1904.

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COMMERCIAL NAT. BANK *v.* CITIZENS' STATE BK., 109 N. W. 198, IOWA, OCTOBER 22, 1906.

Where the defendant issued a certificate of deposit to one who indorsed it in blank, and it passed into a bank, that, while indebted to the plaintiff, sent the certificate to the plaintiff for collection, and the plaintiff credited the bank indebted to it with the amount, and such debtor bank went into a receiver's hands before paying the certificate of deposit, the plaintiff was not a purchaser in due course of business under Code Supp. 3060, a 25 (Crawf. Ann. N. I. L., § 51), the credit given being nothing more than a conditional credit.

WARD *v.* CITY TRUST CO., 102 N. Y. SUPP. 50, JANUARY 11, 1907.

A person taking commercial paper in extinguishment of a debt, surrendering the note of his debtor and the collateral, whether before or after the maturity of the debt, is a holder for value. See N. I. L. Laws, 1897, c. 612, § 51, not referred to in this case, however. Under the N. I. L., § 95, the notice of a want of power in an officer of a corporation to transfer commercial paper held by it, in order to render the transfer ineffectual, must be knowledge on the part of the transferee of such facts as will make his act in taking the paper amount to bad faith.

WILKINS *v.* USHER, 97 S. W. 37, KENTUCKY, NOVEMBER 8, 1906.

Under Acts 1904, c. 102, § 59 (Crawf. Ann. N. I. L., § 98), a third person taking a note for value without knowledge that the maker was deceived as to the purpose for which he signed it, taking it before maturity from the payee who indorsed it to him, is a holder in due course.

Under Acts 1904, § 25 (Crawf., § 51), a person taking a note as collateral security for an antecedent debt is a holder for value.

Under Acts 1904, § 52 (Crawf., § 91), a purchaser of a note on the day after its date, the note being payable one day after date, is a holder for value.

ROGERS *v.* MORTON, 95 N. Y. SUPP. 49, MARCH, 1905.

In an action by the indorsee of a negotiable promissory note, against the maker, who was also the payee and indorser, a plea, demurred to, alleged that the note was never duly negotiated or discounted for value. *Held:* That this is the statement of an

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ultimate fact, and not of a conclusion of law, and was therefore admitted to be true by the demurrer.

An allegation in another plea that the plaintiff is not a bona fide holder in due course, also demurred to, was *held* to be a conclusion of law, and therefore not admitted to be true by the demurrer. See §§ 52, 54, 60, 90, 91, ch. 612, Laws 1897.

WESTHEIMER *v.* HELMBOLD, 109 APP. DIV. 854, NEW YORK, DECEMBER, 1905.

Under the N. I. L., § 55, when the defendants, who were accommodation indorsers on a negotiable promissory note for $300 on which $100 was advanced, returned it to the maker to procure a more satisfactory indorser, and it was then destroyed by the indorsers and the maker, the defendants are still liable as accommodation indorsers for the $100 advanced.

WELCH *v.* KUKUK, 107 N. W. 301, WISCONSIN, MAY 8, 1906.

Where one of two defendants, makers of a note, voluntarily paid the interest thereon before maturity, although by its terms the interest was not due until maturity and the payee voluntarily consented to extension of the time of payment of the note, without regard to the time when the interest was paid, which payment of interest in advance and agreement for renewal was made without the knowledge or consent of another maker, the other defendant who signed the note without consideration, for the accommodation of the first defendant, this accommodation maker was not released from liability by reason of such extension.

The N. I. L. is not cited in the opinion, although in force in Wisconsin. See Laws, Wis., 1899, c. 356, §§ 1675–55 and 1678. Crawf. Ann. N. I. L., §§ 55, 130 (but a portion of § 130 is omitted in the Wisconsin law, § 1678).

SEABOARD NAT. BK. *v.* BK. OF AMERICA., 100 N. Y. SUPP. 740, JUNE, 1906.

An indorsee of a draft indorsed it, presented it to the drawee, and received payment. The indorsement of the payee was a forgery. *Held*, that such indorsee was liable, his indorsement being a guaranty of the genuineness of the signature of the antecedent indorsers. (Crawf. Ann. N. I. L., §§ 60, 64.)

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A draft to the order of an existing firm without its knowledge is not a draft to the order of a fictitious or non-existing payee under the N. I. L., ch. 212, § 28, subd. 3, unless the drawer had no knowledge of the existence of such a firm and his intent was to make it payable to bearer. See p. 743, "The fictitiousness of the payee and the knowledge of the maker must concur."

VIETS *v.* SILVER, 106 N. W. 35, SUPREME COURT, NORTH DAKOTA, DECEMBER 22, 1905.

A negotiable promissory note has no validity between the parties unless delivered. The N. I. L. is not cited, although in force in this state. See Laws 1899, § 30 (Crawf. Ann. N. I. L., § 60).

EVANS *v.* FREEMAN, 54 S. E. 847, N. CAROLINA, SEPTEMBER 18, 1906.

Under Revisal 1905, § 2187 (Crawf. Ann. N. I. L., § 68), an indorsee of a note under an indorsement reciting that the indorser transfers all his right, title, and interest to the indorsee is a holder in due course.

(It does not appear, however, that the bond in question was negotiable, and the transfer, copied within quotation marks, shows that it ceased to be negotiable when indorsed to the plaintiff.)

GRIFFIN *v.* ERSKINE, 109 N. W. 13, IOWA, SEPTEMBER 24, 1906.

When, for several years, the president of a bank had received all the bank's mail, had indorsed all its drafts, and much of the bank's business had been done in the name of its officers as such, in the case of a draft upon such bank, made payable to the person who is president, his name being followed by the abbreviation "Pt," it was held under Laws 1902, c. 130, § 42 (Crawf. Ann. N. I. L., § 72), to be deemed *prima facie* to be payable to the bank of which such person is president.

CHEMICAL NATIONAL BANK *v.* KELLOGG, 75 N. E. 1103, NEW YORK, NOVEMBER 21, 1905.

Where a note is dated and made payable in the state of New York, an indorsement in blank thereon is presumed, under the common law and under Laws 1897, p. 731, ch. 612, § 76, to have been made in New New York, and one discounting the note in good faith can rely on such indorsement.

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MEUER *v.* PHENIX NAT. BK., 88 N. Y. SUPP. 83, MAY 13, 1904.

Under Laws 1897, ch. 612, §§79, 112, 323, 324, 325, the title to a check payable to a specified person passes by delivery without indorsement. The transfer of a check by the payee, by delivery without indorsement, destroys its negotiability, and the transferee takes merely his transferors' title, subject to any equity between him and the drawer.

The payee of a check, given to discharge an indebtedness due to her, transferred it without indorsement for consideration, and the transferee presented it at the bank upon which it was drawn, which certified it. *Held:* The bank was liable, although it did not know who was the owner of the check when the certification was made. See also 86 N. Y. Supp. 701 (January, 1904).

SCHESINGER *v.* LEHMAIER, 99 N. Y., SUPP. 389, SUPR. CT., JUNE 13, 1906.

A bank discounting a negotiable promissory note with knowledge that it is void for usury, is not a holder in due course, under Laws, 1897, p. 732, c. 612, § 91; and it cannot recover thereon, notwithstanding Laws 1892, c. 689, § 55.

ELIAS *v.* WHITNEY, 98 N. Y. SUPP. 667, SUPREME COURT, APRIL 27, 1906.

Where a mere inspection of a check showed that it had been altered, a purchaser thereof took with notice of the infirmity, and was not a holder in due course, under Laws 1897, c. 612, § 91.

HODGE *v.* WALLACE, 108 N. W. 212 WISCONSIN JUNE 21, 1906.

In an action by an indorsee of several promissory notes which provided that any delinquency in payment of interest should cause the whole note immediately to become due, it appeared that the plaintiff became the holder of the notes six days after annual interest upon one of them became due and was unpaid. It was held that he was not a holder in due course within Laws 1899, p. 705, c. 356, § 1676–22, defining a holder in due course as one who among other things takes the instrument before it is overdue (Crawf. Ann. N. I. L. § 91).

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SCHLESINGER *v.* LEHMAIER, 99 N. Y. SUPP. 389, JUNE 13, 1906.

Under § 91 N. I. L., a bank discounting a note with knowledge that it is usurious, is not a holder in due course.

KEENE *v.* BEHAN, 82 PAC. 884, WASHINGTON, NOVEMBER 17, 1905.

Under the N. I. L. (Sess. Laws, 1899, p. 350, ch. 149, Crawf., § 94), the title of a payee of a negotiable instrument is defective where the only consideration for the note is accrued interest on a loan previously made at a rate of interest forbidden by Sess. Laws 1899, p. 128, ch. 80, § 2.

FORD *v.* BROWN, 88 S. W. 1036, TENNESSEE, MARCH 31, 1905.

Under the N. I. L. Acts 1899, p. 150, ch. 94 (Crawf., § 95), it is provided that to constitute notice of an infirmity in the instrument or defect in the title of the person negotiating the same, the person to whom it is negotiated must have had actual knowledge of the infirmity or defect, or knowledge of such facts that his action in taking the instrument amounted to bad faith.

Where certificates of deposit payable to C., "trustee" and "trustee of B. F.," were wrongfully indorsed before maturity, by C., it was *held* that the certificates themselves gave actual notice to to the indorsee that the paper represented a trust fund, and obligated such indorsee to inquire into the right of the trustee to dispose of it under the above section.

BROADWAY TRUST CO. *v.* MANHEIM, 95 N. Y. SUPP. 93, MAY, 1905.

A holder of a negotiable instrument in due course takes it free from any defenses available to prior parties among themselves, under Laws 1897, ch. 612, § 96, p. 732.

ALEXANDER *v.* HAZELRIGG, 97 S. W. 353, KENTUCKY, OCTOBER 31, 1906.

Under Acts 1904, c. 102, § 184, (Crawf. Ann. N. I. L., § 320), a note dated signed by one person promising jointly and severally to pay to D. L. or order a sum stated in 60 days, negotiable and payable at M. Bank with interest at 6 per cent. per annum, is a negotiable promissory note.

Under Acts 1904, § 57 (Crawf., 96), one holding a negotiable

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promissory note in due course for a valuable consideration without notice of any defect, cannot recover thereon when such note was given for a gambling debt, the Ky. St. of 1903, § 1955, declaring all gambling debts to be void.

But see Wirt *vs.* Stubblefield, 17 App. D. C. 283 contra, under the N. I. L. and the better reasoning.

JAMIESON & MCFARLAND *v.* HEIM, 86, PAC. 165, WASHINGTON, JULY 20, 1906.

Though one to whom a draft was payable induced the bank issuing the draft to do so by impersonating another of the same name and putting such name to another draft, one who purchased the draft for value from the payee without notice of any infirmity had a good title and could recover against the drawer under Acts 1899, p. 350, c. 149, § 52 (Crawf. Ann. N. I. L., § 96).

LASSAS *v.* MCCARTY, 84 PAC. 76, OREGON, JANUARY 30, 1906.

Under the N. I. L. (Bell & Cotton, § 4459, Crawf. Ann. N. I. L., § 96) one who bought a second mortgage note for $1,500, paying therefor $1,000, can recover, although the note and mortgage were obtained by fraud, the purchaser having had no actual knowledge of the infirmity or defect, nor any knowledge of such facts that his action in taking the instrument amounted to bad faith.

TAMLYN *v.* PETERSON, 107 N. W., 1081, N. DAKOTA MAY 21, 1906.

In an action by an indorsee against the maker, it was held that when fraud in the inception of a negotiable instrument was alleged and proved, the burden was upon the indorsee to prove that he was a purchaser for value, before maturity without notice and in good faith.

The N. I. L. is in force in this State and the conclusion reached is in accordance therewith (Crawf. Ann. N. I. L., § 98), but the court seems to have overlooked that fact. It followed previous decisions in N. Dakota, and neither the court nor the counsel on on either side, so far as the report shows, cited the N. I. L.

SINGER MFG. CO. *v.* SUMMERS, 55 S. E. 522, N. CAROLINA, NOVEMBER 21, 1906.

Where a cashier's check was issued May 18, 1904, and indorsed May 23, 1906, the time was not unreasonable, under Revisal 1905, § 2202 (Crawf. Ann. N. I. L., § 322).

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An antecedent debt constitutes value under Revisal 1905, § 2173 (Crawf. Ann. N. I. L., § 51). Where the title of one who negotiated an instrument was defective, the burden is on the holder to show that he, or the one under whom he claims, acquired title as a holder in due course, under Revisal 1905, § 2208 (Crawf. Ann. N. I. L., § 98).

QUIMBY *v.* VARNUM, 76 N. E. 671, MASSACHUSETTS, JANUARY 6, 1906.

Upon failure of the maker, the defendant, to pay his note at maturity, an irregular or anomalous indorser paid it to the indorsee, who struck out his own indorsement and delivered the note to the irregular indorser. Five years afterwards he sold the paper to the plaintiff. *Held:* That, having paid the note, the irregular indorser had a cause of action against the maker, but not upon the note. See the N. I. L. Rev. Laws, c. 73, §§ 80, 81, 67, 31 (Crawf. Ann. N. I. L., §§ 113, 114, 80, 202).

ROCKFIELD *v.* FIRST NAT. BK. OF SPRINGFIELD 4, OHIO L. REP. 290, MAY, 1906.

Notwithstanding the provisions of the N. I. L., §§ 3173 h, 3173 i, 3173 k, and 3174 g (Crawf. §§ 113, 114, 116, and 160), one who puts his name on the back of a negotiable instrument, not otherwise a party to it, is a maker or surety, and not an indorser.

It is impossible to follow with approval the reasoning by which the plain provisions of the N. I. L. are ignored, in order to follow what the law was in Ohio before the adoption of the N. I. L., to the sacrifice of the uniformity the law is intended to bring about. It is hoped the case will be appealed and reversed.

GARDNER *v.* PITCHER, 109 N. Y. APP. DIV. 106, NOVEMBER 15, 1905.

An indorser is jointly and severally liable with the maker, and a holder need not exhaust his remedy against the maker, before suing the indorser.

(See § 116 of the N. I. L., although the act is not cited.)

FAR ROCKAWAY BANK *v.* NORTON, 79 N. E. 709, NEW YORK, DECEMBER 21, 1906.

Under Laws 1897, p. 734, c. 612, § 114, providing that where a person not otherwise a party to an instrument payable to the order

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of a third person places thereon his signature in blank before delivery, he is liable to the payee and to all subsequent parties, it was held that such a person placing his name on the back of a note was liable only as an indorser.

MORGAN *v.* THOMPSON, 62 ATL. 410, NEW JERSEY, NOVEMBER 20, 1905.

Since the passage of the N. I. L. (P. L. 1902, p. 596, § 68, Crawf., § 118), evidence is admissible, even between indorsers, to show that as between themselves they have agreed, as to the liability, otherwise than appears upon the note.

STATE BANK *v.* KAHN, 98 N. Y. SUPP. 858, SUPREME CT. MARCH 2, 1906.

Under Laws 1897, c. 612, § 118, as respects one another, indorsers are liable, *prima facie*, in the order in which they indorse, and under § 201, subd. 4, a valid tender of payment made by a prior party discharges one secondarily liable on the instrument.

Where the defendant, who was an accommodation indorser and the last indorser on the note sued on, and he was not a judgment debtor when judgment was rendered against the other parties to the note, which judgment was satisfied by a surety on the appeal bond of such judgment debtors, such payment operated to discharge the defendant's liability on the note.

FLORENCE OIL & R. CO. *v.* FIRST NAT. BK., 88 PAC. 182, COLORADO, DECEMBER 3, 1906.

In an action against the maker of a negotiable note, payable at a particular time and place, a demand need not be averred or proved. If the maker was ready and offered at the time and place specified to pay it, he should plead it and prove it.

Laws 1897, c. 64, p. 225 (Crawf. Ann. N. I. L., § 130), does not change this.

GALBRAITH *v.* SHEPARD, 86 PAC. 1113, WASHINGTON, SEPTEMBER 15, 1906.

Under Sess. Laws 1899, pp. 353, 356 (Crawf. Ann. N. I. L., §§ 130, 160), a holder of a note exercising the option therein stated, to declare it due, upon non-payment of interest, must make presentment and demand for payment, and give notice to the indorser.

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TORBERT *v.* MONTAGUE, 87 PAC. 1145, COLORADO, DECEMBER 3, 1906.

It is for the jury to determine, upon the evidence submitted, whether there has been a waiver of presentment for payment and of notice of dishonor, under Acts 1897, c. 64, §§ 82, 109 (Crawf. Ann. N. I. L., §§ 142, 180).

REED *v.* SPEAR, 94 N. Y. SUPP. 1007, JULY 6, 1905.

Under the N. I. L., ch. 612, § 160, notice of dishonor must be given to charge an indorser, although presentment to the one primarily liable was excused, under § 143 through his death, and no personal representative had been appointed (see § 136). Under §§ 136 and 167, "reasonable diligence" was exercised by the holder, who went two or three times to the office of the administrator of the deceased maker, to make presentment, but was unable to find him there, or at a nearby railroad station, the seat of his other place of business interests at a time when he might be expected to be there, and hence an indorser became liable, on receiving sufficient notice of dishonor. *Held, further:* That notice of dishonor, served at indorser's store, by delivery thereof to his wife, who acted as his assistant, is sufficient notice.

ALBANY TRUST CO. *v.* FROTHINGHAM, 99 N. Y. SUPP. 343 SPR. CT., JUNE 1, 1906.

The payee of a protested note cannot recover of the indorser who did not receive notice thereof until three months after the protest; the notice having been addressed to him to a place where he did not live and which was not his last known address.

(The N. I. L. is not cited, although in force in this State. The test set up is not in accordance with the provisions of § 179. But even thereunder, the plaintiff could not recover.)

PAVENSTEDT *v.* N. Y. LIFE INS. CO., 99 N. Y. SUPP. 614, JUNE 15, 1906.

Under Laws 1897, p. 743, c. 612, § 200, in case of dishonor of a foreign bill of exchange made payable in New York, the holder is entitled to recover the amount of the draft with interest and protest fees, and is not entitled to recover, in addition, exchange and re-exchange.

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McCORMICK *v.* SHEA, 99 N. Y. SUPP. 467, SUPR. CT., JUNE 1, 1906.

Under Laws 1897, p. 744, c. 612, § 201, an indorser, the cancellation of whose signature is agreed to by the holder of a negotiable instrument, is released, though there be no consideration for the cancellation.

Under Law 1897, § 204, the burden of proof is upon him who claims that such cancellation was made unintentionally, or under a mistake, or without authority.

McCORMICK *v.* SHEA, 99 N. Y. SUPP. 467, SUPR. CT., JUNE 1, 1906.

Under the N. I. L., § 201, the intentional cancellation of the signature of one who is secondarily liable on a negotiable promissory note with the consent of the holder releases such person secondarily liable, although there be no consideration for such cancellation.

BALDWIN *v.* DALY, 83 PAC. 724, WASHINGTON, JANUARY 10, 1906.

Under the N. I. L. 1899, § 122 (Crawf. Ann. N. I. L., § 203), the release of a surety on a note cannot be shown by parol; the word "renunciation" being used in the sense of release, it must be in writing.

COLONIAL NAT. BK. *v.* DUERR, 95 N. Y. SUPP. 810, NOVEMBER 10, 1905.

When an instrument has been materially altered and is in the hands of a holder in due course not a party to the alteration, he may enforce payment thereof according to its original tenor (ch. 612, § 205, p. 745, Laws 1897).

A note made in Ohio and indorsed in New York is decided under the law of New York as to the indorser.

HECHT *v.* SHENNERS, 105 N. W. 309, WISCONSIN, OCTOBER 24, 1905.

The material alteration of a note after execution and delivery renders it wholly void, except in favor of a holder in due course not connected with the alteration, under Laws 1899, p. 681, c. 356 (Crawf. Ann. N. I. L., § 205).

VAN BUSKIRK *v.* STATE BK. OF ROCKY FORD, 83 PAC. 778, COLORADO, DECEMBER 4, 1905.

A drawee of a check is not liable to the holder until it accepts or promises to pay in writing, under Laws 1897, c. 64, §§ 126, 185, 143 and 189 (Crawf. Ann. N. I. L., §§ 210, 321, 240 and 325).

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This action was based upon a parol promise (by telephone) to pay the check. But as a check is a bill of exchange drawn on a bank and payable on demand, it is a species of bill, and although it need not be presented for acceptance to render the parties thereto liable, yet, as it does not operate as an assignment of any part of the fund to the credit of the drawer, with the bank, and the drawee bank is not liable to the holder unless and until it accepts or certifies the check, and as, except as otherwise provided and there is no exception, the provisions of the N. I. L. applicable to a bill of exchange payable on demand apply to a check, the provision applicable to a bill of exchange that acceptance or certification must be in writing, applies also to a check.

FIRST NAT. BK. OF ATCHINSON *v.* COMMERCIAL SGS. BK., 87 PAC., 746, KANSAS, NOVEMBER 10, 1906.

Under Gen. Sts. Kansas, 1901, §§ 547, 548, the drawee of a bank check cannot be held liable upon a claimed contract of acceptance external to the bill, unless the language used clearly and unequivocally imports an absolute promise to pay.

(See Crawf. Ann. N. I. L., § 222, which is similar to the Kansas §§ 547, 548.) The N. I. L. is not referred to in this opinion, although in force in Kansas since June 8, 1905, probably because the checks were dated Oct. 15, 1903.

SIMON *v.* MINTZ, 101 N. Y. SUPP. 86, NOVEMBER 14, 1906.

Under the N. I. L. 1897, c. 612, § 320, "where a note is drawn to the maker's own order, it is not complete until indorsed by him," a complaint on such a note failing to allege the maker's indorsement is fatally defective.

FARMERS AND MERCHANTS BK. *v.* BK. OF RUTHERFORD, 88 S. W. 939, TENNESSEE, JUNE 3, 1905.

An indorser of negotiable paper does not warrant to the drawee the genuineness of the maker's signature, but such warranty only extends to subsequent holders in due course of trade.

The drawee of a check, by accepting it, makes himself a guarantor thereof (see Crawf., § 323).

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BOSWELL *v.* CITIZENS SGS. BK., 96 S. W. 797, KENTUCKY, OCTOBER 11, 1906.

Under Acts 1904 of Ky. c. 102, § 189 (Crawf. Ann. N. I. L., § 325,) as between the holder of a check for value in due course and one asserting a drawer's lien on the drawer's bank deposit, the check was not an appropriation of the deposit, reversing the law in Kentucky prior to the N. I. L.

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REPORT OF COMMISSION

ON

BREACHWAY

BETWEEN

POINT JUDITH POND AND THE ATLANTIC OCEAN,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE:
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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REPORT.

To the Honorable the General Assembly of the State of Rhode Island and Providence Plantations:

GENTLEMEN: — The commission appointed by His Excellency Governor Charles Dean Kimball to represent the State of Rhode Island in opening and maintaining a breachway between Point Judith Pond and the Atlantic Ocean in the town of Narragansett, said State, the same being a project commenced by the town of South Kingstown, this commission being supposed to work in conjunction with a commission previously appointed to represent said South Kingstown, beg to report that the commission organized by the election of F. B. Lawton as chairman and E. A. Crumb as secretary.

All the work hereinafter referred to is shown on a map herewith submitted as a part of this report, showing location and nature of work executed. Said map being prepared with the assistance of the U. S. Engineer stationed at Newport, and all of said work has been done in accordance with the suggestions and advice of the officer in charge at the time said work was executed; first, Major George W. Goethals, U. S. A., and later his successor, Lieut. Col. J. H. Willard, U. S. A. All this information, which has been of extreme value to your commissioners, has been furnished by these officers without expense, and we are under obligations to the aforesaid engineers, for said information and their many courtesies.

As shown on the itemized account of expenditures, the same being submitted as a part of this report, you will note that a greater portion of your appropriations has been spent for stone, said stone all placed under contract at the rate of one dollar and seventy-two cents ($1.72) per net ton in place, your commissioners having advertised for es-

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timates, the same being publicly opened and bids ranging from one dollar and seventy-two cents ($1.72) to four dollars and twelve cents ($4.12) per ton in accordance with requirements of specifications, and approximately eleven thousand (11,000) tons have been placed.

Your first, or 1902, appropriation, of ten thousand dollars ($10,000), was spent in commencing the westerly jetty.

Your second, or 1903, appropriation, of ten thousand dollars ($10,000), was spent in continuing said westerly jetty both seaward and inshore, in accordance with the requirements of the elements, and in commencing work on the easterly jetty.

Your third, or 1904, appropriation, of two thousand dollars ($2,000), was spent entirely on the easterly jetty.

Your fourth, or 1905, appropriation, of four thousand dollars ($4,000), was practically all spent in dredging at the mouth of the breachway, a contract being made to excavate a certain surface to a depth of eight feet (8 ft.) at mean low tide, approximately twenty thousand (20,000) cubic yards of excavation being removed for the sum of four thousand nine hundred ninety-five dollars ($4,995.00), of which sum the town of South Kingstown contributed twelve hundred dollars ($1,200).

The last river and harbor bill as passed by Congress appropriated ten thousand dollars ($10,000) for this project, same having been expended in extending the westerly jetty seaward one hundred eighty-five (185) feet and building stone revetment along the shore for a distance of one hundred and fifty-two (152) feet from the shore end of the westerly jetty, to check the tendency of the current to cut behind the jetty, as indicated on map, this contract being let by the government at one dollar and ninety-three cents ($1.93) per ton, in place.

Respectfully submitted,

F. B. LAWTON,
E. A. CRUMB,
GEO. T. BRIGGS.

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STATEMENT OF POINT JUDITH BREACHWAY ACCOUNT TO OCTOBER 1, 1906.

1902.	Appropriation by State	$10,000 00	
1903.	Appropriation by State	10,000 00	
1904.	Appropriation by State	2,000 00	
1905.	Appropriation by State	4,000 00	
			$26,000 00

EXPENDITURES.

1902.			
July	15.	Shedd & Sarle, plans and specifications	$38 00
		Prov. Journal Co., advertising for bids	47 40
		Snow & Farnum, printing specifications	18 50
Aug.	29.	L. L. Holland, engineering	38 55
Oct.	8.	Snow & Farnum, printing incidentals	2 50
		John Bristow, stone	585 34
	9.	L. L. Holland, salary as inspector	50 00
Nov.	15.	L. L. Holland, salary and expenses	51 50
		John Bristow, stone	1,355 78
		D. Gillies' Sons, printing	7 15
Dec.	8.	John Bristow, stone	2,002 80
		L. L. Holland, salary	50 00
1903.			
Jan.	12.	John Bristow, stone	317 85
Feb.	7.	John Bristow, stone	785 26
Mar.	11.	John Bristow, stone	752 17
	19.	L. L. Holland, salary Nov. 1902–March, 1903	118 00
		C. H. Whaley, labor	2 50
		H. Whaley, labor	4 50
		I. Jocoy, labor	2 50
Apr	13.	John Bristow, stone	1,512 93
May	7.	John Bristow, stone	558 76
		John Bristow, 15 per cent. retained on cont.	1,290 37
		F. B. Lawton, commissioner's expenses	173 32
June	2.	John Bristow, labor, etc., aside from cont.	198 66
	4.	L. L. Holland, salary	34 50
July	29.	John Bristow, stone	896 98
Aug.	5.	F. W. Hodgdon, expert engineering	49 14
	24.	John Bristow, stone	296 25
Oct.	3.	John Bristow, stone	2,027 06

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1903.			
Nov. 16.	John Bristow, stone	2,632 89	
Dec. 11.	John Bristow, stone	1,566 98	
21.	R. F. Rodman, engineering	48 50	
1904.			
Jan. 23.	John Bristow, labor, etc., aside from cont.	652 00	
27.	John Bristow, 15 per cent. retained on cont.	1,032 88	
Mar. 10.	John Bristow, labor, etc., aside from cont.	465 00	
	F. B. Lawton, commissioner's expenses	130 65	
May 24.	John Bristow, labor, etc., aside from cont.	112 00	
June 1.	John Bristow, labor, etc., aside from cont.	287 80	
Sept. 12.	John Bristow, labor, etc., aside from cont.	1,195 08	
Oct. 17.	Peleg Brown, carriages	11 00	
1905.			
Jan. 28.	E. A. Crumb, expenses	31 12	
Sept. 11.	B. R. Gardiner, labor	92 00	
1906.			
Jan. 19.	Peleg Brown, teams	39 00	
	John Bristow, labor	30 00	
	John Bristow, labor and teams	341 40	
Feb. 5.	J. C. Tucker, supplies	24 25	
1907.			
Jan. 3.	J. K. Sullivan, dredging	2,997 00	
Feb. 4.	J. K. Sullivan, dredging	798 00	
Feb. 11.	Peleg Brown, teams etc	30 00	
	Unexpended balance to date	214 18	
			$26,000 00

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FOURTH ANNUAL REPORT

OF THE

State Board of Examiners for Barbers,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE, R. I.
E. L. FREEMAN COMPANY, STATE PRINTERS.
1907.

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REPORT

To the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at the January Session, A. D. 1907:

The State Board of Examiners for Barbers herewith submits to your honorable body the fourth annual report of the Board, for the year ending December 31, 1906, including a statement of the work that has been accomplished by the Board during the year, and a tabulated report showing the amount of money received and expended by the Board in carrying out the provisions of Chapter 1100 of the Public Laws.

Jeremiah J. Manning, of Providence, was appointed by Governor Utter, during the month of January, 1906, to serve as a member of the Board, for a term of three years, ending January 1, 1909.

The Board met and organized for the year on Thursday, February 1, 1906, by electing William Wathey, Jr., of Apponaug, chairman; Thomas McArdle, of Pawtucket, secretary; and Jeremiah J. Manning, of Providence, treasurer.

The following is a complete statement of the number of renewal cards issued, number of applications received for examination, receipts from same, disbursements of the Board, together with the proceedings and doings of said Board for the year; also recommendations which the Board thinks advantageous to the general public:

FINANCIAL STATEMENT FROM JANUARY 1, 1906, TO JANUARY 1, 1907.

Number of renewal cards issued in the several cities and towns, 1,130, amounting to	$1,130 00
Number of applicants for examinations, 179, amounting to	895 00
Total	$2,025 00

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Accumulated interest in bank	$4 00
Total income of Board from Jan. 1, 1906, to Jan. 1, 1907	2,025 00
Balance in the treasury, January 1, 1906	663 04
Total	$2,692 04
Salaries	$2,010 00
Mileage, office supplies, examinations held	209 17
Balance in the treasury, January 1, 1907	472 87
Total	$2,692 04

The work that has been carried on by the Board during the past year has been extensive, and during the year the Board has held five examinations, at which one hundred and seventy-nine (179) applicants for registration certificates were notified to appear. Of this number, one hundred and forty-three (143) presented themselves and were examined; one hundred and twenty-four (124) of these passed a successful examination, and thirty-nine (39) failed to meet the requirements which have been prescribed by the Board as to what shall constitute a competent barber. The number of apprentices registered during the year of 1906 was seventy-five (75).

During the past year the law has been faithfully observed by a great majority of barbers who have come under the jurisdiction of the "Board of Examiners for Barbers," and the result has been a general improvement in the sanitary conditions of the shops and the tools used therein. The shops in the central part of the cities have required practically no attention, having always enforced strict sanitary measures and complying with them; but those shops in the outlying districts of the cities and in the adjacent towns have been the source of considerable trouble, and in many cases have required numerous visits. A misunderstanding in regard to the law and its enforcement has been the cause of considerable criticism, and the delay in obtaining decisions by the supreme court is largely responsible for the above-mentioned criticisms. During the past year fifty-four (54) certificates of registration have been revoked

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by the Board, because of the unsanitary conditions and failure to meet the requirements of the rules of the Board.

All of the barber shops coming under the provisions of the act, creating the "Board of Examiners for Barbers" have been visited during the past year, and some have required revisiting several times. In making these visits the members of the Board have been required to give their services without compensation, receiving only mileage.

The general improvement in the sanitary conditions of the various shops, in those cities and towns that have come under the jurisdiction of the Board, seems to recommend that it would be for the welfare of the State to extend the provisions of the law so that those towns which are now excluded may be included, and the "Board of Examiners for Barbers" recommends the passage of such measures as may legalize the same.

The Board has found great difficulty in enforcing Section 13 of Chapter 1100 of the Public Laws, which permits any barber, aggrieved by any decision of the Board, thirty (30) days in which to present his appeal to the supreme court of the State of Rhode Island. The appeal may not be heard for a year or more, and in the meantime the barber pursues his usual vocation without regard for any decisions by the Board of Examiners for Barbers. The Board recommends that the time allowed for appeal be reduced to ten (10) days instead of thirty (30) days, and that a supreme court judge be permitted to hear all appeals, and that a decision be rendered within six weeks from date of filing of said appeal.

WILLIAM WATHEY, JR.,
THOS. F. McARDLE,
JEREMIAH J. MANNING.

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THIRTY-SEVENTH ANNUAL REPORT

OF THE

COMMISSIONERS OF INLAND FISHERIES,

MADE TO THE

GENERAL ASSEMBLY

AT ITS

JANUARY SESSION, 1907.

PROVIDENCE:
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1907.

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COMMISSIONERS OF INLAND FISHERIES OF RHODE ISLAND.

HENRY T. ROOT, *President, Treasurer, and Auditor*.....Providence, R. I.

J. M. K. SOUTHWICK, *Vice-President*.....Newport, R I.

Wm. P. MORTON, *Secretary*.....P. O. Box 966, Providence, R. I.

CHAS. W. WILLARD.....Westerly, R. I.

ALBERT D. MEAD.....Brown University.

ADELBERT D. ROBERTS.....P. O. Box 264, Woonsocket, R. I.

Wm. H. BOARDMAN.....Central Falls, R. I.

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REPORT.

To the Honorable the General Assembly of the State of Rhode Island and Providence Plantations, at its January Session, 1907:

The Commissioners of Inland Fisheries herewith present their annual report for the year 1906:

The work undertaken by the Commissioners during the past year may be tabulated and discussed under the following heads:

I. The stocking of our ponds and streams with fresh-water fish, through the distribution of eggs and fry. Page 18.

II. The collection of data and statistics relating to the commercial fisheries. Page 19.

III. The location of fish traps within the waters of Narragansett Bay, and the collection of statistical data bearing upon their ownership. Page 24.

IV. The continued examination of the physical and biological conditions of the Bay, begun in 1898. Page 32.

V. A continuance of the survey of the shores of the Bay, for the purpose of determining those portions which are most productive of young seed clams and most suitable for the planting of clams and for the distribution of lobster fry. Page 81.

VI. Continued investigations into the methods of clam culture Page 83.

VII. Efforts to prevent the illegal taking of short lobsters and egg lobsters. Page 85.

VIII. The propagation of lobster fry for the purpose of increasing the supply of lobsters in the waters of the state. Page 87.

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IX. The continued investigation of the life history of the lobster and the habits of the lobster in all stages of growth, to furnish a basis for legislation and commercial enterprise. Page 95.

X. The preparation of an exhibit illustrative of sea farming, including live fishes in salt water aquaria, for the Washington County Fair, for the purpose of interesting the people of the state in the magnificent possibilities of "sea farming." Page 211.

XI. The preparation of an exhibit for the international exhibition at Jamestown. Page 218.

Appended to the report are the following:

A. Officers of the United States Bureau of Fisheries and of the State Fisheries Authorities. Page 219.

B. Fisheries Laws of Rhode Island. Page 227.

C. General Index to the Reports of the Commissioners of Inland Fisheries of the State of Rhode Island. Page 241.

D. Titles of Special Papers published in the Annual Reports of the Commissioners of Inland Fisheries of the State of Rhode Island. Page 257.

Under some of these captions are submitted special articles as follows:

Under IV.

The Fishes of Rhode Island, III: The Fishes of the Mackerel Family. H. C. Tracy.

A List of Rare Fishes taken in Rhode Island in the year 1906. H. C. Tracy.

List of the Rhode Island Copepoda, Phyllopoda, and Octracoda, with new species of Copepoda. Dr. Leonard W. Williams.

Under VIII:

Lobster Culture at Wickford, R. I., in 1906. Ernest W. Barnes.

Under IX:

Regenerated and Abnormal Appendages in the Lobster. V. E. Emmel.

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The Stomach of the Lobster and the Food of Larval Lobsters. L. W. Williams.

Regarding the Behavior of the Larval and Early Adolescent Stages of the American Lobster. P. B. Hadley.

During the past year your Commission has pursued the same general policy as for several years past, but has extended its work considerably along certain lines.

The beneficial effect of stocking the fresh waters with appropriate fish is now so obvious that it needs no argument. The work has been carried on by the Commission for many years, and has so far won the confidence of the anglers that they are now giving invaluable co-operation in enforcing the laws which give reasonable protection to the fishing. About 40,000 fingerling trout were bought and distributed last year.

By act of the General Assembly a few years ago this Commission was especially required to enforce the short lobster law, and has since that time pushed the work with vigor and success. The first effect of the enforcement was to cut down the amount of lobsters taken, but the gradual increase in catch since then has proved the wisdom of the measure. The expenses and salaries of the deputy Commissioners in enforcing this law is between $2,000.00 and $2,500.00.

One great need of your Commission has been definite and reliable information regarding the marine fishes which inhabit the waters of the state, regarding their times of arrival and departure, their abundance, their breeding habits and food, and the effect of fishing upon the supply. It would be inexcusable if no effort were made to obtain information regarding the extent and condition of so valuable an industry as our fisheries. Your Commission has been for several years systematically collecting and recording such data and from time to time publishing in its reports such information as could be put together with any degree of completeness. (See index.)

During the last two years, especially, we have been able to publish considerable data of this sort.

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While complete and accurate data on the actual catch of fishes is exceeding difficult, or impossible, to obtain, the figures taken from the books of shipping firms and of dealers give some idea of the status of the fishings. The data regarding the number, location, and ownership of traps (Ch. III), when compared for several years, is significant and points to a remarkable increase in this branch of the fisheries industry. The tables show that from 1898, when the records were begun, to the present year there has been a steady gradual increase from 119 traps to 249. An examination of the charts showing the location of these traps through the series of years shows an interesting development of ideas regarding the movements of fishes.

From the studies on fisheries in various parts of the world there seems to be no doubt but that the abundance or scarcity among many species of fishes depends in large measure on the food supply; but the question of food supply of marine fishes is as complex as it is interesting and important. Since some species feed on others, these again on a third, and these perhaps on minute crustacea or diatoms, it soon appears that no form of animal or plant can safely be neglected in a study of the food and consequent movements of fish, or, for that matter, of shell fish, or of any other valuable marine animals.

Your Commission, therefore, with what time can be spared from more immediately important work, is conducting a survey of the biological and physical conditions of the Bay, and is gradually getting together such information. The fact that the federation of the fisheries boards of all the northern countries of Europe is conducting this sort of a survey systematically and on a large scale is a fair indication of its value.

The work of the Commission at its Wickford station has each year increased in extent and efficiency, and much of what a few years ago was experimental has now a just claim to be called practical. This work was undertaken with a view to the especial needs of Rhode Island fishes, which could not be met by known methods of procedure, so that most of the problems had to be worked out and methods

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developed from the beginning. Of these the following are cases in point: the working out of the life history, habits, and means of destruction of the starfish, which is an enemy to the oyster; the discovery of the means of distinguishing "seed scallops" certain enough to be used as legal proof; the development of a practical clam culture, together with the discovery of the breeding habits, rate of growth, conditions of best growth, means of collecting spat, etc.; The complete working out of a practical method of rearing lobster fry to a point of comparative safety. All these have been tackled as unsolved problems and worked out to practical application.

The principal work at the station last year was upon lobster culture, including investigations looking forward to future steps in this business. As for several years past, the output of fingerling lobsters has doubled that of the preceding year. This year nearly 200,000 were reared and liberated in the Bay. The effect of liberating these lobsters in previous years is already marked, and fishermen throughout the upper part of the Bay have for two or three years been reporting considerable numbers of small lobsters in localities where they had not been found for many years. Several new discoveries were made this season which will, we believe, greatly increase the efficiency of this branch of the work. For example, it has been shown that the rate of growth of the lobster can be so increased or diminished, as to make a difference of more than 100 per cent., according to the amount and kind of food given. The difference in growth due to the loss of limbs and regeneration has also been shown to be of great importance from a commercial point of view. It was found that the fourth-stage lobsters could easily be carried in quantities through the next molt, with little loss in numbers, and with great gain to their chances for the future.

In solving the problem of rearing lobster fry, your Commission has succeeded in doing what has been unsuccessfully attempted by many state and national fisheries boards.

It is with gratification, which we hope your Honorable Body may share, that we learn that several of these national governments are

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contemplating the adoption of our method of lobster culture. Your Commission appreciates the fact that the success it has had in its various undertakings has been made possible by the continuous support of the General Assembly. Interruption and uncertainty are fatal to the success of experimental work which of necessity must extend through several years. Having thus far led by a long distance all other stations in this important work, we have a pride in keeping the lead for the State of Rhode Island.

Although the method of rearing fry by the Wickford apparatus is a practical success, we see clearly how it can be improved. Among the discoveries made last summer was the very significant fact that a great improvement can be made by getting the egg lobsters fresh from the traps, not handled over, carred, packed in ice, and shipped. From 56 fairly fresh egg lobsters, with about the average number of eggs, nearly 85,000, lobsters were reared to the fourth stage, an average of about 1,500 for each lobster. Fresh egg lobsters should by all means be had, and the only way to get them is by having a launch large enough to go about in the Bay, and short distances outside with safety. The launch must have a well for carrying the lobsters.

Improvements are also to be expected in at least two other points: in the feeding of the fry and in the matter of their exposure to light and shadow. In view of these facts, your Commission through its scientific staff is making a careful investigation of the food of the young lobsters (Ch. IX), and a study of their behavior under various conditions at the several stages of their early development. These studies have already indicated some possible forms of improvements.

Your Commission has for a long time foreseen the necessity of a careful study of the lobster after he has reached the lobsterling stage and before he is sexually mature, for obviously the next step in the lobster culture is the raising of fingerlings to adult condition. Experience in working out methods for rearing the young lobster fry, as well as young clams, scallops, starfish, etc., proves most conclusively that the way to attack such a problem is first to find out what the

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habits, rate of growth, peculiarities, and requirements of these creatures are. There has been almost entire lack of knowledge regarding these points for the adolescent lobster, and your Commission has therefore conducted investigations along this line for several years. The rate of growth, the effect of varying food on growth, the extraordinary effect of loss of limbs on frequency of shedding, and consequently on growth, the fact that little lobsters can withstand the cold and freshness of our estuary waters, and many other hitherto unknown facts have been worked out to a point where they should now be tried on a larger scale in an inclosure or pound of considerable size. The natural configuration of our shores does not give such good opportunities for enclosing small bodies of tide water as does that of the coast of Maine, for example, but if a suitable place can be found and enclosed for the purpose of experimenting on raising lobsters to the adult stage, and for further experiments in breeding clams, scallops, crabs, and quahogs, the opportunity should by all means be seized.

The work of the Commission in all departments has undergone a steady and normal growth and while the appropriation of $7,500.00 which has been made annually for several years has been so far sufficient, it is not now possible to continue the work we have been doing, and to take advantage of opportunities of increasing its efficiency, without a larger appropriation.

In carrying out the object of this Commission, namely, that of maintaining and developing the fisheries of the state, we realize the emportance of informing the public on the subject of fisheries. With this in view we have devoted considerable effort to the preparation of exhibits for the international exposition and, during the past two years, for that of the Washington County Agricultural Association. The United States Government has again invited us to co-operate with it in the fisheries exhibit at the Jamestown Exposition, and the invitation has been accepted.

Finally, your Commission cordially invites the members of your Honorable Body to inspect the work and the expenses of the Com-

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mission, and especially to visit the experiment station at Wickford when the apparatus for rearing lobster fry is in operation.

The following is the financial statement for the year 1906:

State of Rhode Island in account with Commissioners of Inland Fisheries.

1906.		Dr.	
Sept. 12,	To paid American Fish Culture Co., for 40,000 trout and distribution of same		$1,347 13
Dec. 31.	To expenses and salary of Deputy Commissioners under lobster law		2,082 37
	To expense at Wickford laboratory rearing lobsters, investigating clams, scallops, and other fisheries		4,808 88
	To expense of Commissioners		686 00
	To printing		178 12
	To legal expense		60 00
			$9,212 50

1906		Cr.	
Jan. 3.	By received from State Treasurer		$35 00
	" " " "		104 18
	" " " "		25 00
5.	" " " "		20 00
	" " " "		25 00
	" " " "		26 04
17.	" " " "		25 00
	" " " "		90 05
	" " " "		72 95
31.	" " " "		32 38
	" " " "		25 00
	" " " "		25 59
	" " " "		27 95
Feb. 2.	" " " "		22 00
	" " " "		20 00
4.	" " " "		20 67
23.	" " " "		25 00
28.	" " " "		80 15
	" " " "		63 40

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1906.		Cr.	
Feb.	28.	By received from State Treasurer	12 50
		" " " "	3 00
		" " " "	25 00
		" " " "	5 35
Mar.	2.	" " " "	25 00
	4.	" " " "	20 00
		" " " "	22 00
	15.	" " " "	10 05
	16.	" " " "	25 00
	28.	" " " "	27 43
		" " " "	82 50
		" " " "	67 75
		" " " "	2 00
	30.	" " " "	25 00
April	4.	" " " "	25 00
		" " " "	24 50
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		" " " "	24 27
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	18.	" " " "	147 50
		" " " "	45 85
		" " " "	30 00
		" " " "	20 00
		" " " "	20 00
	27.	" " " "	2 95
		" " " "	72 45
		" " " "	81 10
May	2.	" " " "	30 00
		" " " "	20 00
		" " " "	20 00
		" " " "	6 75
		" " " "	23 28
		" " " "	34 96
		" " " "	4 32
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		" " " "	90 60
	10.	" " " "	41 61
		" " " "	35 10

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1906.		Cr.	
May	10.	By received from State Treasurer	15 50
		" " " "	3 00
		" " " "	101 50
	16.	" " " "	5 00
	17.	" " " "	1 50
	18.	" " " "	39 00
		" " " "	52 87
		" " " "	20 00
		" " " "	12 00
		" " " "	1 50
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	31.	" " " "	86 68
		" " " "	76 50
		" " " "	40 00
		" " " "	14 00
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June	6.	" " " "	30 00
		" " " "	23 17
		" " " "	46 00
		" " " "	20 00
		" " " "	22 50
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		" " " "	20 00
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		" " " "	43 60
		" " " "	2 57
		" " " "	3 00
		" " " "	11 45
		" " " "	28 46
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		" " " "	26 64
	14.	" " " "	134 16
	20.	" " " "	25 00
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1906.		Cr.	
June 20.	By received from State Treasurer		21 00
	" " " "		15 00
	" " " "		15 75
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	" " " "		21 75
	" " " "		10 05
	" " " "		45 48
27.	" " " "		4 75
	" " " "		88 95
	" " " "		77 20
	" " " "		2 50
	" " " "		19 50
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July 6.	" " " "		30 00
	" " " "		20 00
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	" " " "		20 00
	" " " "		18 00
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	" " " "		32 00
	" " " "		4 00
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	" " " "		27 50
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18.	" " " "		30 00
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1906.		Cr.	
July	18.	By received from State Treasurer	20 00
	31.	" " " "	93 55
		" " " "	87 45
		" " " "	82 67
Aug.	2.	" " " "	136 15
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		" " " "	21 00
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		" " " "	9 00
	3.	" " " "	71 90
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		" " " "	72 79
		" " " "	89 14
		" " " "	163 76
		" " " "	109 48
		" " " "	41 52
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		" " " "	50 50
		" " " "	10 00
		" " " "	5 32
		" " " "	79 08
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	8.	" " " "	154 22
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		" " " "	12 95
	15.	" " " "	46 72
		" " " "	20 00
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		" " " "	12 75
		" " " "	15 00
	31.	" " " "	91 65
		" " " "	83 85
Sept.	5.	" " " "	25 00
		" " " "	117 94

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1906.		Cr.	
Sept.	7.	By received from State Treasurer.....	60 55
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		" " " "	20 00
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	13.	" " " "	10 00
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		" " " "	1 35
		" " " "	31 14
		" " " "	17 49
		" " " "	14 29
		" " " "	16 73
		" " " "	18 34
		" " " "	10 46
		" " " "	2 45
		" " " "	6 75
		" " " "	5 00
		" " " "	30 00
		" " " "	18 00
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		" " " "	100 00
		" " " "	85 00
	21.	" " " "	10 00
		" " " "	9 09
	28.	" " " "	22 00
		" " " "	1,000 00
		" " " "	79 80
		" " " "	89 80
		" " " "	9 10
Oct.	3.	" " " "	30 00
		" " " "	18 00
	5.	" " " "	25 25
		" " " "	30 90
	12.	" " " "	30 00
		" " " "	18 75
	24.	" " " "	44 65
	25.	" " " "	3 35

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1906.		Cr.	
Oct.	25.	By received from State Treasurer	89 25
		" " " "	75 15
	31.	" " " "	30 00
		" " " "	19 00
Nov.	1.	" " " "	26 20
	2.	" " " "	24 10
	9.	" " " "	10 00
		" " " "	25 33
		" " " "	17 60
		" " " "	3 00
		" " " "	1 76
	15.	" " " "	40 98
		" " " "	10 80
	21.	" " " "	4 28
		" " " "	56 85
	28.	" " " "	25 40
		" " " "	23 00
		" " " "	86 50
		" " " "	78 50
		" " " "	1 60
Dec.	5.	" " " "	25 00
		" " " "	34 43
		" " " "	1 73
		" " " "	10 00
		" " " "	3 75
		" " " "	6 00
		" " " "	15 21
		" " " "	109 25
		" " " "	30 00
		" " " "	20 75
		" " " "	16 50
		" " " "	30 00
		" " " "	30 00
	13.	" " " "	16 50
		" " " "	6 15
	18.	" " " "	48 55
		" " " "	7 00
	21.	" " " "	23 00
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1906.		Cr.	
Dec. 26.	By received from State Treasurer		84 25
	" " " "		3 00
	" " " "		65 25
			$9,212 50

Respectfully submitted,

RHODE ISLAND COMMISSIONERS OF INLAND FISHERIES,

HENRY T. ROOT, *President,*

Treasurer, and Auditor.

December 31, 1906.

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I. The Stocking of Our Ponds and Streams with Suitable Fresh-water Fish, through the Distribution of Eggs and Fry.

Trout.

The Commission has purchased of the American Fish Culture Company, of Carolina, R. I., 40,000 yearling trout. These have been distributed in the various streams of the State. We wish to take this opportunity to acknowledge the assistance rendered by many of the fishermen in the work of distribution.

Shad.

For a few years past the United States Bureau of Fisheries has been unable to supply your Commission with shad fry because of the scarcity of the spawn.

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II. The Collection of Data and Statistics Relating to the Commercial Fisheries.

The fishing season on the whole was very good, and it was quite free from severe storms. Among the various fish caught in Rhode Island waters, the following deserve special notice.

Scup.

The scup season was one of the best in a good many years. Not only was there an abundance of fish, but they were also quite large. The run began about April 23 and ended near the first of July.

Mackeral.

The mackerel season was not very good, although a number of good catches were reported by the menhaden boats and others outside of the "fleet." The school seemed to be broken up and the "fleet" did not have good success in finding the fish.

Codfish.

These seemed to be as plentiful as ever, and the dogfish menace was not particularly severe.

Menhaden.

The menhaden in the Bay were as abundant as usual. There were no indications of the plague which destroyed so many in 1904. The first menhaden caught in the West Passage in 1906 was caught April 16.

The line fishing was slightly above the average. Tautog, squiteague, flatfish, etc., were fairly abundant.

Many schools of young fish were observed, and this is a good omen for the future.

The difficulty of collecting complete and accurate statistics of the

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total catch of fishes was mentioned in the introduction, and has been remarked upon in previous reports. There are so many and so various channels through which fishes reach the market or the private consumer that it is practically impossible to keep track of them all. This difficulty is not peculiar to Rhode Island, but applies to the fishing industry generally. Nevertheless, a fair indication of the relative status of the fisheries is to be had by comparing the statistics taken year after year from the same sources. With this word of explanation, the following tables of the catch of fishes and lobsters, based upon the records of dealers and transportation lines, are, as heretofore, submitted:

Table Showing the Amount of Fish, Lobsters, and Other Sea Product Shipped Monthly from Newport by the Principal Transportation Companies During the Year 1906.

	Barrels Fish.	Barrels Lobsters.	Barrels Quahaugs.	Barrels Crabs.	Barrels Clams.	Barrels Spawn.	Barrels Sounds.	Number Swordfish.	Number Sturgeon.	Number Horse-mackerel.	Number Turtles.	Number Sharks.	Number Porpoise.	Barrels Oysters.
January	1,413	196	....	....	....	2	....	....	....	....	....	....	....	...
February	638	179½	....	....	....	....	....	....	....	....	....	....	....	...
March	703	113	3	....	....	....	....	....	....	....	....	....	....	...
April	1,039	81½	1	6	2	....	....	....	....	....	....	....	....	...
May	11,753	125½	....	20	....	....	....	....	....	....	....	....	....	...
June	18,643½	141	3	99	8	....	1	472	6	20	1	1	....	...
July	6,332½	238½	13	29	2	....	....	274	5	2	1	1	....	...
August	5,996	133½	3	67	....	....	....	65	....	....	....	7	....	...
September	5,361	70	....	54	....	....	....	....	....	10	....	1	....	...
October	3,381	3	....	42	1	....	5	....	....	8	....	....	1	76
November	4,369	3	....	....	1	....	....	....	....	....	....	2	....	17
December	1,226	22	....	....	1	....	....	....	....	....	....	....	....	19
	60,855	1,306½	23	317	15	2	6	811	11	40	2	12	1	112

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Table Showing Shipment of Fish, Lobsters and Other Sea Product from Newport for the Last Twenty Years.

	Barrels Fish.	Barrels Lobsters.	Barrels Quahaugs.	Barrels Crabs.	Barrels Clams.	Barrels Spawn.	Barrels Sounds.	Number Sword-fish.	Number Sturgeon.	Number Horse-mackerel.	Number Turtles.	Number Sharks.	Number Porpoise.	Barrels Eels.	Barrels Oysters.
1887	16,657	834	...	...	...	...	...	...	...	...	...	...	...	...	...
1888	15,033	1,161	...	...	...	...	...	...	...	...	...	...	...	...	...
1889	19,306	2,047	...	...	...	...	...	...	...	...	...	...	...	...	...
1890	8,933	2,650	...	...	...	..	...	...	...	...	...	...	...	...	...
1891	18,032	2,204	...	...	...	...	...	...	...	...	...	...	...	...	...
1892	26,832	2,123	...	...	...	...	...	...	...	...	...	...	...	...	...
1893	24,452	1,399	...	...	...	...	...	...	...	...	...	...	...	...	...
1894	17,769	2,392	...	...	...	...	...	...	...	...	...	...	...	...	...
1895	24,622	2,119	...	...	...	...	...	...	...	...	...	...	...	...	...
1896	20,425	1,728	...	...	...	...	...	143	...	...	...	...	...	...	...
1897	52,098	2 039	...	...	...	...	...	45	...	...	...	...	...	...	..
1898	34,065	1,163	...	...	...	...	...	74	...	...	...	...	...	...	...
1899	34 917	4,143	..	...	...	...	...	162	...	...	...	...	...	...	...
1900	38,184	4,793	...	...	...	...	...	166	...	...	...	...	...	...	...
1901	50,500	4,393	...	...	...	...	...	21	...	...	...	...	...	...	...
1902	53,986	4,342	...	1	...	...	...	179	...	...	...	...	...	...	...
1903	54,384	1,474	...	84	...	...	...	164	11	79	...	...	...	18	...
1904	62,106	1,921	...	45	8	...	...	554	...	336	...	...	...	...	...
1905	50,127	977	...	122	80	3	23	723	26	91	...	1	1	...	...
1906	60,855	1,306½	233	17	15	2	6	811	11	40	2	12	1	...	112
Total	656,283	45,208½	233	569	103	5	29	3042	48	546	2	13	2	18	112

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Number of Pounds of Lobsters Caught in Rhode Island Waters for the Season of 1905 *and* 1906.

Fish Markets.	For 1905.	For 1906.
Burlingame & Carey	8,079	6,480
Tollefsen & Dewitt	15,000	15,100
Lawton	8,000	8,000
Wyat	8,004	7,548
Ash	20,636	11,500
Smith	10,000	10,135
Ring	550	550
Easterbrooks	6,525	6,550
C. B. Andersen	31,965	63,398
H. McGinn	147,464	182,462
Saloons and Restaurants	45,436	41,850
	301,659	353,573
Sakonnet	97,641	163,341
Block Island, Watch Hill, Narragansett Pier,	100,000	155,000
Total	499,300	671,914
Increase		171,614

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Number of Boats Engaged in Lobster Fishing in this State for the Years 1904, 1905, *and* 1906.

	Sailboats.			Rowboats.			Pots.		
	1904.	1905.	1906.	1904.	1905.	1906.	1904.	1905.	1906.
Newport	36	36	44	35	30	31	5,000	6,050	6,740
Narragansett	3	2	2	3	2	4	400	350	355
Saunderstown	1	1	2	2	1	1	150	100	330
Sakonnet	1	1	2	5	5	5	250	250	350
East River	3	4	7	0	2	4	185	260	480
Warren	2	1	2	0	2	2	180	200	200
Green Hill	0	0	0	1	1	1	70	70	70
Watch Hill	1	2	4	4	4	4	400	400	450
Block Island	8	8	10	0	2	2	1,200	1,200	1,475
Jamestown	0	0	2	3	3	8	100	100	600
Point Judith	0	0	2	0	3	2	.....	200	230
Wickford	.....	.....	1	.....	.....	2	.....	.....	75
Total	55	55	78	53	55	66	7,935	9,180	11,355

Lobsters Received from Nova Scotia from December 18, 1905, *to July*, 1906.

1905.	Crates.	Pounds.	*Shorts.	Egg.
December	307	53,725	624	4
January	686	120,050	3,143	50
February	509	89,075	2,264	16
March	321	56,175	944	31
April	324	56,700	711	23
May	188	32,900	460	41
June	239	41,825	609	50
	2,574	450,450	8,755	215

*The short lobsters in the above shipments were seized by the deputies and liberated in Rhode Island waters.

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III. The Location of Fish-Traps within the Waters of Narragansett Bay, and the Collection of Data Bearing upon Their Ownership.

The collection of data under this head was begun in 1898, when there were already more than one hundred traps in the Rhode Island waters exclusive of Block Island. For nine years our reports have published charts showing the position of the traps and a table indicating their ownership. The table giving the summary for the nine years is interesting in showing the steady increase in number of traps in various locations and as a whole.

The increase in the number of traps includes the year 1906. It is particularly noticeable in the offshore traps, where the number has doubled in the last three years. During the scup season a cordon of these large traps is spread about the mouth of the Sakonnet river. To form the outer edge of this cordon twenty traps, each with a leader one-half mile long, are stretched in a nearly perfect arc from Seal Rock to a point south-southeast of Sakonnet Light. The forty-four remaining traps are interspersed within this arc in such a way as to fill up the gaps in the outer row. (See chart.)

Not only has there been an increase in the number of traps, but as predicted in the last report the traps have been extended a farther distance from shore. The Fisheries Company has a string of nine immense traps on one line of leaders and the outermost trap is four and a half miles from shore.

In the west passage the fishermen have added drag-nets to their gear, and they are thus able to improve intervals of time when the trap season is dull.

Table Showing Number and General Distribution of Fish Traps Since 1898.

The following arbitrary divisions have been made for the sake of convenience:

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Hope

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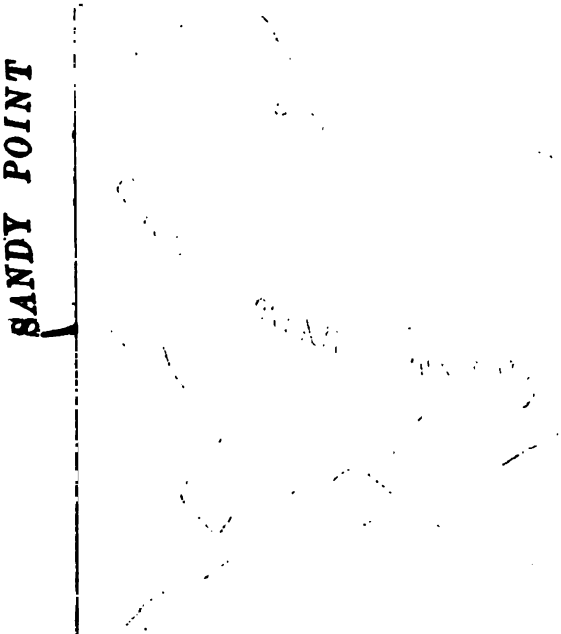

Total
119
121
135
151
161
195
220
240
249

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I. *Providence River.*—South to a line joining Warwick Point and Popasquash Point.

II. *Greenwich Bay.*—South of Providence River division in west passage to a line drawn east and west touching southern part of Hope Island.

III. *West Passage.*—The west passage south of Greenwich Bay region to a line drawn due west from Beaver Tail and west of a line connecting the east end of Greenwich Bay boundary and North Point.

IV. *Mount Hope Bay.*—North of railroad bridge, Tiverton, and a line connecting Bristol Ferry and Muscle Shoal Light.

V. *East Passage.*—South of Providence and Mount Hope Bay divisions and north of a line from Beaver Tail to Brenton's Point.

VI. *Sakonnet River.*—The Sakonnet river south of railroad bridge to a line connecting Flint Point and the breakwater.

VII. *Off Shore.*—Traps south of above divisions and not off Block Island.

VIII. *Block Island.*

YEAR.	Providence River.	East Greenwich.	West Passage.	Mount Hope Bay.	Sakonnet River.	East Passage.	Off-Shore.	Block Island.	Total.
1898.....	4	6	26	9	34	15	25	.....	119
1899.....	3	10	23	11	35	15	24	.....	121
1900.....	4	16	24	16	34	12	29	.....	135
1901.....	7	15	24	13	52	14	26	.....	151
1902.....	6	22	27	13	52	14	27	.....	161
1903.....	7	21	32	13	72	16	30	.....	195
1904.....	6	27	33	7	78	14	49	6	220
1905.....	6	26	33	11	82	20	56	6	240
1906.....	6	35	27	11	80	20	64	6	249

Compiled by E. W. Barnes, A. M.

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1906.

LIST OF TRAPS AND OWNERS.

Off-Shore Traps. (*See Charts.*)

Anderson, C. A.	South Cormorant Rock.
Anderson, C. A.	South Sakonnet Light.
Anderson, C. A.	South Narragansett Pier.
Brightman, W. (00)*	Seal Ledge.
Brightman, W.	South Sakonnet Light.
Brightman, W. (00)	Below Cormorant Rock.
Brownell & Church	Coggeshall's Ledge.
Brownell, J.	Lower Pier.
Brownell, J.	North Narragansett Pier.
Brownell, J.	South Sakonnet Light.
Brownell, J.	South Cormorant Rock.
Calvert, G. (000)	Spouting Rock.
Church, James	South Lower Pier.
Church, James	Coggeshall's Ledge.
Cottrell, Cottrell, Church & Luther	Coggeshall's Ledge.
Cottrell, Cottrell, Church & Luther	South Cormorant Rock.
Cottrell, Cottrell, Church & Luther	Cormorant Rock.
Cook, Chas. (00)	North Sakonnet Light.
Easterbrooks, C. (00)	Price's Neck.
Fisheries Co.	Coggeshall's Ledge.
Fisheries Co. (000000000)	South Sakonnet Light.
Grinnell, F.	South Sakonnet Light.
Lockinger, H.	South Breakwater.
Lockinger, H.	Sakonnet Light.
Macomber & Simmons	South of Pier.
Macomber & Simmons	Below Coggeshall's Ledge.
Macomber & Simmons	South Sakonnet Light.

*The ciphers indicate the number of traps set in line on one string of leaders.

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Petty, J.....South Cormorant Rock.
Providence Fish Co.....West Cormorant Rock.
Providence Fish Co.....South Sakonnet Light.
Rose, W.....Below Cormorant Rock.
Rose, W.....South Cormorant Rock.
Rose, Geo. (00).....North Sakonnet Light.
Rose, Geo.....South Sakonnet Light.
Sakonnet Oyster Co. (00).....Seal Rock.
Silvia, P.....Eastons Point.
Tallman, B. (00).....South Cormorant Rock.
Tallman, B.....South Sakonnet Light.
Tew, R.....West Price's Neck.
Tew, R.....West Sachuest Point.
Wait, B.....Breakwater.
Wilcox, H.....South Cormorant Rock.
Wilcox, H.....South Cormorant Rock.
Wilcox, H.....North Sachuest Point.
Wilcox, H.....Sakonnet Light.
Wilcox, Chas.....South Cormorant Rock.

Other Traps.

Aldrich, R.....North Point.
Aldrich, R. (00).....Quonset Point.
Almy, Frank.....High Hill Point.
Almy, Frank (00).....South High Hill Point.
Anderson, C. B.....Coddington Cove.
Anderson, C. B.....Coddington Cove.
Baker, C.....West Vials Creek.
Brayton, G.....Northwest Hope Island.
Brayton, G. (00).....North Prudence Park.
Brayton, G.....Podjac Point.
Brayton, G.....Pine Hill Point.
Carpenter, Geo.....South Ferry.
Coggeshall, E.(00).....Wood's Castle.

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Coggeshall, E.....Lower west shore Sakonnet.
Coggeshall, E.....South Sandy Point.
Coggeshall, E.....North Sandy Point.
Corey, Ed. (000).....Lower west shore Sakonnet.
Corey, Ed. (000).....Wood's Castle.
Corey & Allen (00).....South High Hill Point.
Corey & Allen (00).....Brown's Point.
Corey & Martin (00).....South High Hill Point.
Corey & Martin (000).....North Brown's Point.
Corey & Martin (00).....North Church's Point.
Cottrell, S.....West Popasquash Neck.
Cottrell, S.....West Popasquash Neck.
Cottrell, S.....West Popasquash Point Neck.
Cottrell, S.....West Popasquash Neck.
Cottrell, S.....Mount Hope Point.
Cottrell, S.....South Mount Hope Point.
Cottrell, S. (000).....Upper East Sakonnet River.
Cottrell, W.....North Tiverton.
Cottrell, W.....North Tiverton.
Falkner, G.....South Portsmouth.
Fish, Clinton.....North Tiverton.
Fish, Clinton.....North Tiverton.
Fish, Clinton.....North Tiverton.
Fish, Clinton (000).....McCurry's Point.
Gladding, A. B. (00).....Castle Hill South.
Gray Bros. (00).....East Hope Island.
Gray Bros. (000).....Prudence Park.
Gray Bros.....Southwest Prudence Island.
Gray & Sowle.....Prudence Park.
Gray & Sowle.....East Hope Island.
Gray, Geo. E. & Co.....South Sandy Point.
Gray, Geo. E. & Co.....North Sandy Point.
Gray, Geo.E. & Co. (000).....South McCurry's Point.
Grinnell, E. (000).....North Pine Hill Point.

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Harvey, Chas.....South Coal Mine, West Shore Rhode Island.
Hicks, O. G.....Castle Hill South.
Howland, J.....Island Park.
James, Arnold.....Taylor's Point.
James, Arnold.....Jamestown.
James, Arnold.....Mackerel Cove.
King, Chas.....Fogland Point.
King & Wait (00).....South McCurry's Point.
King & Wait.....South McCurry's Point.
Lake, Benj. (00).....Fogland Point.
Lake, I.....West Vials Creek.
Lake, I.....Northwest Conanicut Island.
Lawton, Ed.....Mackerel Cove.
Lawton, Ed.....Mackerel Cove.
Lawton, F.....Mackerel Cove.
Lawton, F.....Mackerel Cove.
Lawton, F. (00).....Brenton's Cove.
Lewis Bros.....Packards Rocks.
Lewis Bros.....West Vials Creek.
Lewis Bros. (00).....Wild Goose Point.
Lewis Bros. (00).....Dutch Island Harbor.
Lewis Bros.....North Dutch Island Harbor.
Lewis Bros.....Sandy Point.
Lewis Bros.....South Sandy Point.
Lewis, Wilson (000).....North Black Point.
Lewis, Wilson (000).....North Sandy Point.
Lockel Moses.....Buttonwoods.
Locke, Moses.....Chepiwanoxet.
Macomber, F. A. (00).....North High Hill Point.
Macomber & Rose.....North Pine Hill Point.
Madison, P. (00).....Northwest Hope Island.
Madison, P. (00).....Northeast Hope Island.
Madison, P.....Buttonwoods.
Madison, P.....Buttonwoods.

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Manchester, A. (00).....South Sandy Point.
Manchester, A. (000).....North Sandy Point.
Manchester, D.....Quonset Point.
Manchester, D.....Vials Creek.
Matteson, C.....Fox Hill.
Matteson, C.....Conanicut.
Mitchell, E.....North Prudence Park.
Mitchell, E.....South Podjac Point.
Negus Bros.....North Mount Hope Point.
Northup & Co.....Austin's Hollow.
Pierce, B. T.....South Black Point.
Pierce, B. T.....North Sandy Point.
Providence Fish Co.....Off Wood's Castle.
Rice, H. H.....Warwick Neck.
Rose, Geo.....Church's Cove.
Rose, Geo.....North Mount Hope Point.
Rose, Geo.....North Mount Hope Point.
Rose, Ed.....Upper East Shore Sakonnet River.
Rose, Ed.....South Stone Bridge.
Rose, Sam.....Upper East Shore Sakonnet River.
Rose, Sam (00).....North Sapowet Point.
Sanford, J.....South High Hill Point.
Shepherd, J. (00).....North Point Popasquash.
Silvia, P. (00).....Flint Point.
Sisson, ———.....South Greenwich Bay.
Smith, Bros.....Southeast Prudence.
Smith Bros.....East Shore Conanicut.
Smith, W.....West Quonset Point.
Smith, W.....Poplar Point.
Snell, A. (00).....South Sapowet Point.
Snell, A.....South Sapowet Point.
Snell, A.....South McCurry's Point.
Spink, J. W.....North Point Conanicut.
Spink, J. W.....Southeast Prudence.

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Taber, J.....North Tiverton.
Tillinghast, G.....Warwick Point.
Tourgee, P.....Austin's Hollow.
Tourgee, P.....South Saunderstown.
Wilcox, H.....Church's Cove.
Wilcox, H. (00).....High Hill Point.
Wilkie, A.....South Sapowet Point.
Wilson, Al.....Buttonwoods.
Wilson, Al.....South Podjac.

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IV. The Continued Examination of the Physical and Biological Conditions of the Bay, Begun in 1898.

This work has been carried on continuously, and from time to time, as the data bearing upon particular subjects accumulated so as to warrant publication, they have been brought together in our report in the form of special papers. See index.

We should be glad to receive from fishermen or from other sources reliable information regarding the condition of the fisheries.

This report includes the following papers:

The Fishes of Rhode Island, III: "The Fishes of the Mackerel Family," by H. C. Tracy, A. M.;

"A List of Rare Fishes taken in Rhode Island in the Year 1906," by H. C. Tracy, A. M.;

"A List of the Rhode Island Copepoda, Phyllopoda, and Ostracoda, with New Species of Copepoda," by L. W. Williams, Ph. D.

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THE FISHES OF RHODE ISLAND.

III. *THE FISHES OF THE MACKEREL FAMILY.

BY HENRY C. TRACY, A. M.,

BROWN UNIVERSITY.

One of the most important of the natural groups of fishes is the Mackerel family. The Mackerels are of especial interest, since they have, for a long time, been of great value to man on account of their desirability for food, and because of the commercial importance of the enormous number of fishes which are caught every year from their vast migratory schools.

The Mackerel family, as a whole, is cosmopolitan, and has representatives in the oceans of all temperate and tropical regions. None of them occur in the Polar seas. Most of the species of the family, also, have a wide distribution. Some of them, like the Common Mackerel, prefer the cool water of the temperate zone, while others, like the Frigate Mackerel and the Spanish Mackerel, prefer warm and tropical seas; but in either case their migratory habits cause them to traverse wide areas of ocean and thus become, perhaps, the most widely distributed of any of the groups of fishes.

In habits and mode of life all the Mackerels show a strong family resemblance. They all feed on similar kinds of food and have essentially the same breeding habits. Since feeding and reproduction are the dominant factors in the lives of all organisms, it is

* The first paper in this series was entitled "A List of the Fishes of Rhode Island," and appeared in the thirty-sixth Report, for 1905, page 38: the second paper, "The Common Fishes of the Herring Family," appeared in the same report, page 100.

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not strange that these fishes should be so alike, even in many of the details of their existence.

All the fishes of the Mackerel family are, to a high degree, of active and pelagic habits. This mode of life is made necessary by the kind of food on which they subsist and it furnishes the most favorable conditions for their method of reproduction. The Common Mackerel feeds partly upon minute surface creatures, chiefly crustaceans and larval invertebrates, and partly upon small fishes; all the other species of Mackerel feed on other fishes, such as the herring, menhaden, sand launce, etc. It is supposed that they hunt by sight, since they snap at all kinds of moving objects in the water, especially if they are shiny like small surface fishes. Most of them are rivals of the bluefish in voracity and exceedingly fierce in their pursuit of prey. The mackerels are thus for the most part surface feeders and, consequently, differ widely in habit, general activity, and manner of life from those fishes, like many of the Cod family, for instance, which prey largely upon the sluggish and sessile invertebrates of the ocean bottom. The fishes of the Mackerel family, therefore, find their most natural abode in the surface waters of the open ocean, where there is an abundance of all kinds of free-swimming organisms. These waters, also, especially their more shoreward areas, furnish conditions most favorable for reproduction. The breeding process in all the mackerels is probably similar to that of such fishes as the herring and cod; spawn and milt are simultaneously shed out free into the water and fertilization of the eggs must, to some extent at least, be a matter of chance. The eggs are buoyant and must be widely dispersed by the waves and tides. The conditions conducive to the securing of the most favorable results from this method of reproduction are furnished by the surface waters of the open ocean. The active and pelagic habits, which are possessed in common by all fishes of this family, are thus an adaptation to the character of their food and to their method of reproduction.

Characteristic, also, of the fishes of the Mackerel family are their gregarious and migratory habits. Some of the species of this group

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form vast schools, in some cases of many square miles in area and containing an immense number of fishes. The fishes of the same school are usually of nearly uniform size and apparently do not tend to mingle with other schools which may be in their immediate neighborhood. Of the manner in which the fishes keep together in the schools, very little is known. Observations on some fishes seem to indicate that they keep together by sight. But however this may be, it is possible, in the case of the Mackerels, to indicate certain factors which are doubtless of influence in determining the instinct which leads to the formation of the schools. One factor may be their habit of feeding on other fishes which form large schools, for instance, the herring, menhaden, anchovies, etc. In the vast areas of the ocean, fishes of solitary habits are doubtless widely scattered and of such uncertain occurrence that the compact masses of such fishes as form large schools are the most available food supply for fishes of such fierce and voracious feeding habits as the Mackerels. These conditions probably favor the massing together of a large number of the Mackerel for the purpose of feeding. That the individual fishes of a school may co-operate in "running down" other fishes is not improbable, as this is said to be an observed fact in the case of the bluefish which has similar habits as the fishes of the Mackerel family.

But a stronger influence in determining their gregarious habits is probably to be found in the conditions required by the spawning process. The successful accomplishment of reproduction in the case of such fishes as the mackerel, herring, and the cod, where the sexual products are shed out free into the water, demands the aggregation of an immense number of fishes. If they did not breed together in large schools it is obvious that the spawn and milt would become so scattered by the movements of currents and tides that the chances of the eggs becoming fertilized in sufficient numbers would be exceedingly small. It is also true that the greater the number of spawning fishes massed together in a given area, the greater will be the proportion of eggs which can be successfully fertilized. It there-

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fore seems safe to say that, in the case of the Mackerels, the formation of dense schools is a necessity for the most successful fulfillment of the reproductive process.

These influences in determining the schooling instinct may, perhaps, be more evident when they are considered in connection with the migrations of the schools of these fishes, particularly in the cases of the Common Mackerel and the Spanish Mackerel whose migrations are, to some extent, definite and regular. While these movements are influenced, to a great extent, by temperature and other conditions, their fundamental causes are to be found in the reproductive instinct and in the necessity of securing food. The initial impulse which drives them from their winter home and starts them on their spring migrations is probably given by the approaching maturity of their reproductive organs; the course which they follow, although determined to some extent, perhaps, by temperature and the available food supply, has for its ultimate goal conditions of water and temperature which are suitable for spawning. On the other hand, the later movements of the schools, in the summer and autumn after spawning has taken place, are doubtless regulated partly by temperature, but chiefly by the movements of schools of other fishes upon which they are feeding.

To sum up briefly the habits of the fishes of the Mackerel family: They feed exclusively, for the greater part of the year at any rate, upon the free-swimming animals of the surface, and they spawn in the open waters of the ocean; for the securing of food they are necessarily of pelagic habits, and extremely active and predacious; for the securing of conditions suitable for spawning, extensive movements to favorable localities are necessary, and the formation of large schools is essential for the most successful completion of the process. These fishes are thus, to a high degree, predacious, pelagic, gregarious, and migratory.

Besides the similarity in their habits, the great degree of the adaptation of the external features of their bodies to their active and pelagic existence is very characteristic of all the fishes of this

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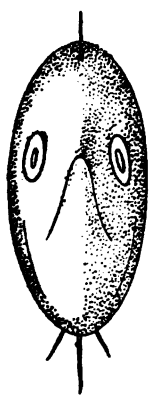
family. The perfection of this adaptation is perhaps best seen in the case of the Spanish Mackerel. Its body is spindle shaped and so smoothly rounded in every part of its surface that it affords the least possible resistance to the motion of the fish through the water. The forward half of the fish is perfectly smooth, symmetrical, and somewhat cone shaped; it serves admirably as a cut-water for the rest of the body. It is made more perfect for this purpose by the wedge-like shape of the head, all the surfaces of which are perfectly rounded, and its external structures fitted together in such a way that there are no irregularities or projections to break the smoothness of its curves and furnish resistance to rapid progress through the water. The margins of the jaws fit tightly to each other, the surfaces of the eyes conform perfectly to the curvature of the surfaces of the head, and the gill covers close smoothly to its sides. All these parts fit together with such accuracy that, from the apex of the jaws, the surfaces bounding the head diverge gradually in long, slightly convex curves and without a break pass over to the body region of the fish; then, near its middle, they gradually become merged into the slightly concave surfaces of the posterior region. This portion of the body tapers gradually backward and ends in the strong, broadly-forked tail fin; its surfaces run in smooth, slightly hollow curves, which allow the water displaced by the forward movement of the fish to pass backward with the least resistance. A strong median longitudinal ridge is developed on each side of the caudal region of the trunk. This serves as a horizontal keel and is supposed to prevent the stroke of the tail from varying from the vertical plane. When viewed from in front, the outline of the body "appears as a perfect ellipse and surprisingly small in size;" the margins of the fins now appear scarcely distinguishable and are so sharp and thin as to offer very little resistance to the water. The skin of the body is perfectly smooth, since the scales are very small and with-



Front view of the Spanish Mackerel. (After Dean).

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out spines. It is entirely covered with a considerable quantity of slime, which still further smooths off the surface of the skin by filling in its lesser inequalities.

All these modifications of the external structure of the body of the fish reduce to a minimum the resistance to its rapid motion through the water. It is strong and muscular; the vertebræ are relatively small and numerous, an arrangement which is conducive to flexibility of the body. The Spanish Mackerel thus possesses a combination of qualities which makes it one of the swiftest and most powerful swimmers of the sea. The same applies equally well to the Bonito, and all the fishes of this family possess the above described characters with greater or less modification. They are thus, perhaps, the best adapted of any fishes for an active and predacious existence in the open waters of the ocean.

The external structure of the fishes of the Mackerel family is distinguished by the following characteristics: The body is elongate, spindle shaped, and slightly compressed. The head is cone shaped, and pointed in front; the mouth is large, the jaws strong, the teeth sharp and, in most of the species, small. The gill openings are very wide. They have two fins on the back, the first one spiny and depressable in a groove; the second is made up of soft rays. Directly under the latter, on the ventral side, is placed the ventral fin. Behind each of these two is placed a row of small finlets. The pelvic fins are placed directly below the pectoral fins. The tail fin is strong, broadly forked, and adapted for rapid motion. Most of the species have a median longitudinal keel just in front of the tail fin. The scales are usually minute and without spines, but in some of the species they are somewhat enlarged and confined to a distinctly defined area on the front part of the body so as to form a corslet. The lateral line is present and is usually very wavy in its course. In size the different species vary much; the Chub Mackerel is scarcely over 14 inches in length, while the Horse Mackerel sometimes reaches a length of 10 feet or more and weighs up to 1,500 pounds.

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Seven species of the Mackerel family are found in Rhode Island waters. According to the peculiarities of their structure they may be divided into the following three groups:

I. SMALL SPECIES WITH NO MEDIAN KEEL at the root of the tail fin. The two back fins are widely separated; the body is covered with very small scales, and there is no sign of a corslet; the mouth is large; there is a single row of very small, slender teeth on each jaw and on the roof of the mouth. In this group there are two species:

1. The Common Mackerel. *Scomber scombrus.* Plate III.

This has no air bladder; there are 11 or 12 spines in the first dorsal fin; a groove connects the two dorsal fins; the body is dark blue above, with about 35 wavy, blackish, transverse streaks; the under sides of the body below the middle line are silvery and irridescent.

2. The Chub Mackerel. *Scomber colias.* Plate IV.

The air bladder is present; the eye is somewhat larger than in the Common Mackerel; 9 or 10 spines in the first dorsal fin; no groove connecting the two fins; its color is blue with about 30 wavy, blackish streaks across the back; these are less definite than in the Common Mackerel; below the middle line the sides are silvery, but in the adult they always have roundish, dusky spots or cloudings; in size it is smaller than the Common Mackerel.

II. SMALL SPECIES WITH A MEDIAN KEEL at the root of the tail. Dorsal fins well separated; the posterior region of the body has no scales except along the lateral line; the forward part is covered with small scales of which those in the breast region are enlarged and form a corslet; mouth rather small; teeth very small and on the jaws only; the air bladder is not present. In this group there is only one species:

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3. **The Frigate Mackerel.** *Auxis thazard.* Plate V.

III. SPECIES OF LARGE SIZE.—The dorsal fins are *not* well separated; well-developed keel at the sides of the root of the tail; the body is wholly covered with small scales. There are four species in this group, which may further be subdivided into two divisions:

a. Large species in which a well defined corslet is present:

4. **The Horse Mackerel.** *Thunnus thynus.* Plate VI.

The mouth is wide; on the jaws is a series of cone-like teeth; on the roof of the mouth are bands of sand-like teeth; about 14 spines on the first dorsal fin; the eye is small; the body is very stout and thick, and reaches a very great size; its color is dark blue above, and grayish below with silvery spots.

5. **The Bonito.** *Sarda sarda.* Plate VII.

Body elongate; the corslet is small but distinct. The mouth is large; strong, cone-shaped teeth are on the jaws and the roof of the mouth; the first dorsal fin is long, with about 20 strong spines; the second is small, followed by 8 or 9 finlets; no air bladder; dark steel blue above, with numerous narrow, dark stripes from the back obliquely downward and forward; silvery below.

b. Large species in which a well defined corslet is not present:

6. **The Spanish Mackerel.** *Scomberomorus maculatus.* Plate VIII.

Head pointed, short and small; mouth wide, with strong knife-like teeth on the jaws; fine sand-like teeth on the roof of the mouth; air bladder present; first dorsal fin with about 17 spines; color silvery, bluish above; sides with many ellipitcal spots of yellowish bronze color; fins variously colored, white, blackish, and yellowish.

7. **The Kingfish.** *Scomberomorus regalis.* Plate IX.

Similar in all respects to the Spanish Mackerel, except that its sides have two blackish, longitudinal bands which cross the lateral

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line below the soft dorsal fin and breaks up into spots posteriorly; above and below these are numerous brownish spots arranged in rows.

The following synopsis of the most important of the characters distinguishing these species may be useful:

A. Species with dorsal fins widely separated.

I. SMALL SPECIES WITH NO CAUDAL KEEL.

1. The Common Mackerel.

No air bladder; groove connects dorsal fins; sides of body silvery.

2. The Chub Mackerel.

Air bladder present; no groove connecting dorsal fins; sides of body silvery with dark spots; small in size.

II. SMALL SPECIES WITH CAUDAL KEEL.

3. The Frigate Mackerel.

No scales on posterior region of the body; corslet present; teeth on jaws only; no air bladder.

B. Species with dorsal fins not separated.

III. SPECIES OF LARGE SIZE WITH CAUDAL KEEL.

a. Species in which a well-developed corslet is present.

4. The Horse Mackerel.

Body very large, stout, and thick; cone-like teeth on jaws only; dark blue and grayish, in color with silvery spots; 14 spines in first dorsal fin.

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5. The Bonito.

Body elongate; cone-shaped teeth on jaws and roof of mouth; dark blue above, with oblique stripes: 21 spines in first dorsal fin.

b. Species in which a well-developed corslet is not present.

6. The Spanish Mackerel.

Sides with many elliptical spots of yellowish bronze color; fins with white, black, and yellow.

7. The Kingfish.

Sides with two blackish, longitudinal stripes and numerous, brownish spots.

THE COMMON MACKEREL.

(*Scomber scombrus.*)

PLATE IV.

I. *Distribution and Habitat.*—The home of the common mackerel is the North Atlantic Ocean. On the American coast its southern limit is off Cape Hatteras. Here they are taken in the spring by the New England mackerel boats in water at some distance from the shore. Throughout the summer they are abundant along the coast of the Middle States and of New England and in the Gulf of St. Lawrence. They are not found in any numbers in shoal water south of Long Island, although stragglers are sometimes found in the Chesapeake Bay and in the sounds about Cape Hatteras in the latter part of the summer. The natural northward limit of the species seems to be not far from the Straits of Belle Isle, though in exceptional

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instances they have been known to visit the coast of Labrador. They appear irregularly off the northeastern coast of Newfoundland and are never found in Hudson's Bay or on the coast of Greenland.

On the European coast their southerly limit is the Canary Isles and the Mediterranean, where they abound, especially in the Adriatic. They range northward to the south coast of Norway and Sweden; they occur in the Baltic and are found along the shores of Denmark and Prussia; they are abundant in the North Sea. At the British Isles they abound in the channel north to Norfolk, but they also occur to some extent along the east coast of Britain to the Orkney Islands; also in the Irish Sea and off the south and southwest coasts of Ireland.

As far as records go, they have never been taken on the African coast (except possibly in the Mediterranean), nor in South America, the West Indies, or the Gulf of Mexico, or even at the Bermudas. Thus the common mackerel seems to be confined to the coast waters of the temperate region of the North Atlantic, never straying into tropical or polar regions nor habitually wandering long distances over the ocean.

II. *Migrations.*—The annual movements of the schools of the common mackerel have, for a long time, been of great interest and the subject of much speculation. These are partly a matter of practical interest because the success of the commercial fisheries would be greatly facilitated by a knowledge of such definiteness regarding the laws and conditions of their appearance and disappearance in different years at different points along the coast that the fishermen could regulate their operations accordingly. But the particular reason why the question of the migrations of the common mackerel has received more attention than those of any other fish is on account of the disputes between the United States and the Canadian governments " concerning the value to our fishermen of the right to participate in the mackerel fisheries in the Provincial waters." But in spite of all this discussion about the habits of the mackerel, they are little better understood in some respects than those of many other

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fishes which have not attracted so much attention. There is, of course, little doubt as to the general significance of these movements themselves in the life history of the mackerel, but the course and extent of these migrations involve many questions which are still open to debate.

The mackerel first approach the coast in spring or early summer for the purpose of spawning. The shore waters are more favorable for this on account of the obvious advantage to the newly hatched young near the coast, where an abundance of the more minute surface organisms are present. The females, during the breeding season, do not feed and can not be taken with a hook. The first migration towards the coast must, then, be looked upon as, to a large extent, independent of the food supply, and therefore what Sars called a "spawning migration." But the presence of the mackerel in shore waters during summer and autumn, after spawning has taken place, is for the purpose of feeding on the young of other fishes which abound in those waters during the latter part of the season. The latter movements of the mackerel are therefore "feeding migrations."*

Notwithstanding the fact that the final causes of the migrations are to be found in the feeding and reproductive processes, the movements of the schools are largely influenced by various physical factors, the most important of which is probably the temperature of the sea water. According to Goode, the appearance of the mackerel takes place off the American coast when the average harbor temperature is not below 45° F. The temperature in the open sea at this time is somewhat lower, probably as low as 40° or even less.† On the European coast, according to Allen,‡ the mackerel first appear off the southwest of the coast of Ireland when the surface temperature is about 50° F.; off the Mediterranean coast of the south of France, when the temperature approaches 60° F. This may indicate the existence of three separate races of mackerel which have become

* Allen, Jour. Mar. Biol. As., 1897, 25.
† Report, U. S. Fish Com., 1881, 99.
‡ Loc. cit., 25.

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adapted to different temperature conditions. This is consistent with the investigations to be mentioned later, which apparently establish the existence of local races.

On the American side of the Atlantic the mackerel first appear off Cape Hatteras, usually between March 20 and April 25. Their appearance at other places along the coast takes place at about the following dates: "Off Norfolk, Va., March 20 to April 30; off the Capes of Delaware, April 15 to May 1; off Barnegat and Sandy Hook, May 5 to May 25; and at the same date along the whole southern coast of New England and as far east as Nova Scotia, while in the Gulf of St. Lawrence they appear late in May and in abundance early in June."* Stragglers often appear at dates much earlier than those given above.

The mackerel remain in northern waters during the summer; they are most abundant in the Gulf of St. Lawrence and the Bay of Fundy in July and August. In September and October they remain plentiful along the New England coast and in the Gulf of St. Lawrence; they finally disappear from the northern coasts in November. They have been observed to leave the Gulf of St. Lawrence in large schools, passing out by the same routes by which they entered, *i. e.*, around the north of Cape Breton Island or through the Straits of Canso. In two instances the schools have been followed along the south shores of Nova Scotia, past the coasts of Maine and Massachusetts, as far as Cape Cod and Nantucket Shoals.† After the departure of the mackerel in the autumn, they remain absent from the coast until the arrival of the spring schools of the next year. Sporadic cases have been reported, however, of the capture of scattering individuals in northern waters in the winter.‡ In 1906 such a specimen was presented to the Rhode Island Fish Commission by J. T. Fearney & Son, of Providence; it was taken in Narragansett Bay, near Saunderstown, on January 30. The winter of that year was exceptionally warm.

* Goode, Report, U. S. Fish Com., 1881
† Collins, J. W., Report U. S. Fish Com., 1881, 121.
‡ Report, U. S. Fish Com., 1881, 97.

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Along the European coast it is not possible to trace the movements of the mackerel with the same definiteness. In January and February a very few fish are present in the western part of the English Channel, and off the southwest coast of Ireland, and in the Gulf of Marseilles. On the west coast of France they may appear in February and remain from that time onward. Toward the end of March or early in April large schools of full-grown fish approach the southwest coast of Ireland and the west coast of France, and at these places now begins the great spring mackerel fishery. At about the same time mackerel fishing begins in the Mediterranean. In May and June the fish are all along the coasts of the British Isles and France, and the spring fishery is at its height. In Norway the large schools appear toward the end of May, and the principal fishery is carried on during the latter part of that month and in June; it continues to be good until the middle of July, when it practically ceases. Professor Sars mentions large schools which are observed near the Orkney Islands at the end of July; these he considers to be the schools returning from Norwegian coasts to the Atlantic. As a general rule, along the whole European coast there is a season of scarcity during July and August. The autumn fishing is very important and takes place during September and October on the southwestern coast of Ireland, in the southern part of the North Sea, and in the eastern portion of the English Channel, and also on the west coast of France. In Norway in the autumn there also exists a very considerable fishery; the mackerel at this time are crowding into the deep water fjords to feed on the young herring and other small fish which abound there; they leave and go to sea again as soon as this small fry becomes scarce. On the south coast of France a small number of mackerel remain until winter. The fisheries practically close in November and December along the whole European coast, though a very few are sometimes taken in winter in various localities, especially off the southwest coast of Ireland.*

* Allen, loc. cit. 12.

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Perhaps the most important of the questions connected with the migrations of the mackerel is—where do the fish go after leaving the coast in the autumn? To answer this question with complete certainty is, at the present time, as impossible in the case of the mackerel as it is with most other migratory fishes. The theory once held that the mackerel hibernate at the ocean bottom not far from the regions of their summer sojourn, is now considered highly improbable. There are, then, at the present time two possible theories regarding their winter habitat.

The first theory is that during the winter the mackerel may continue to live in the surface waters of the sea where the temperature is suitable. In order to reach this region extended coastwise migration toward the south would be necessary. But it is practically certain that this is not the case, since there is no record of mackerel being taken during the cold months of the year south of Cape Hatteras, or in the West Indies, or on the coast of Africa. Neither have any ever been seen in the warm waters of the open ocean. On the other hand, it is possible that the schools may break up with the approach of winter and that individual fishes may wander about independently, thus possibly escaping detection. Yet this is scarcely probable, and is contrary to what is known regarding the habits of the fish. On the whole, however, with regard to this theory it must be said that "until the contrary is shown to be the case, it must remain one of the possible solutions of the question, although it is not very probable, since were it so, specimens would almost certainly have been captured at some time or other."

According to the second theory, the mackerel may live in the deeper layers of the sea, at a greater or less distance from their summer home. At the present time this seems a much more probable view of the case.

The fact that on the American coast the spawning season becomes later as the schools appear further northward indicates that a large number of fishes probably move in from waters more northerly than off Cape Hatteras, where they first appear. There is also little to

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suggest any very extensive southward journey of the schools in the autumn after their disappearance from northern coasts. Observations on the behavior of the European mackerel are also consistent with this theory.

Further, there are certain facts which seem to indicate that the mackerel, when not present at the surface near the coasts, may be in deeper water not far away. In certain bays on the west coast of Ireland large spring mackerel are taken in nets close to shore two or three weeks before any are captured outside in water 40 to 80 fathoms deep. This suggests a shoreward movement of the fishes in the deeper layers of water. Also, several cases have been observed of the capture of mackerel by trawls of boats fishing in deep water when the fish were not present at the surface. In one such case a large number of mackerel were taken in trawls at the beginning of March, 1891, at about six miles off Cape Couronne at depths of 50 to 75 fathoms. Such facts are consistent with the finding of mackerel in the stomachs of cod taken in American waters some time before the schools had showed at the surface.

If it be true, then, as the facts known at present seem to indicate. that the mackerel retire to deeper waters to spend the colder months of the year, the question then remains as to whether there is a deeper layer of water accessible to the fish where they can find a temperature similar to that of their summer haunts. That such a substratum of water actually exists is shown by a series of observations taken in 1873 by H. M. S. Challenger between Bermuda and Halifax, and Bermuda and New York. In the Report of the U. S. Fish Commission for 1877, Goode has an extended discussion of this matter and shows that out near the Gulf Stream, at a depth of 50 to 100 fathoms, there are, in April and May, extensive layers of water which have a temperature of about 50° F. There is also reason to suppose that similar conditions of temperature exist in parts of the Atlantic off the European coast, though no exact records have been taken in that part of the ocean.

The evidence which has been adduced above to support the second

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theory of the location of the winter home of the mackerel rests entirely upon fragmentary observations and the somewhat uncertain deductions based upon them. The problem of the course of the migratory fishes has always been a peculiarly difficult one because the movements of these fishes take place in such breadths and depths of the ocean that only an exceedingly meagre opportunity is afforded for direct observation upon them. There is, however, one possible line of approach to the problem which has been applied with success to the European mackerel. I refer to the methods used by Mr. Walter Garstang, M. A., of the Marine Biological Laboratory at Plymouth, England, in his work on the "Variation, Races, and the Migrations of the Mackerel."* This is probably the most important piece of scientific work ever done bearing directly upon the questions connected with the periodical migrations of the ocean fishes.

A brief statement of his methods and results will suffice in this place. He obtained as large a number of mackerel as possible from different localities and "by the detailed study of the variations of certain chosen characters in the mackerel of these different localities" he endeavored to determine whether or not local races exist. The range of variation in these characters in the different local groups of mackerel were compared and the frequency with which particular variations or combinations of variations occur in any one local group were compared with their frequencies in all the other groups. "For example, if we suppose that the number of fin rays in the first dorsal fin varies between 10 and 14, the value 12 will probably occur with the greatest frequency. But other possibilities occur; and while 12 might be constantly the most frequent value in one local group of fish, it is quite conceivable that 13 might be constantly the most frequent value in samples of another group." In this case, if the two groups were examined under similar conditions and the variation determined upon a sufficient number of specimens, these two groups should be regarded as two distinct races.

* Garstang, On the Variation, Races, and Migrations of the Mackerel, Jour. Mar. Biol. As., 5 N. S., 1897, 235.

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The characters selected for comparison in the various local groups were the following:

1. The number of black transverse bars or stripes across the sides of the fish.
2. The number of the same transverse bars which meet or cross the lateral line.
3. The number of round, black, dorso-lateral intermediate spots situated between the transverse bars.
4. The number of rays in the first dorsal fin.
5. Number of fin rays in second dorsal fin.
6. Number of dorsal finlets.

Having thus stated the general method, it will be sufficient here to state the general conclusions to which Mr. Garstang's work led.

The American mackerel were found to constitute a distinct variety or race and to differ from the European mackerel in having a greater number of spots and a greater number of finlets; but it has a less number of fin rays in both the first and the second dorsal fins. The European mackerel were found to belong to two principal races: an Irish race, and a race frequenting the English Channel and the North Sea. The Irish race again is divisible into two distinct stocks, one of which belongs to the west coast of Ireland and the other to the south coast of Ireland. "The Western Irish stock represents more closely than any other race the primitive type of mackerel from which all, whether British or American, have been derived." The south Irish fish are distinctly intermediate between the west Irish fish and the channel fish. These facts led Garstang to say that the peculiarities which distinguish one local race from another "are greatest between the races of localities which are geographically remote and least between those which are geographically contiguous."

This establishment of local races throws much light on many aspects of the migration problem. The differences between the American and European races show that they do not mix, and that therefore no long migrations take place across the Atlantic. With

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the mackerel of the British Isles, the difference between the Irish and the Channel fishes makes it extremely probable that no extended coastwise movements can take place; each race of fishes must have its own winter home, its own spawning grounds and its own distinct course of migration, and these must all be so far distinct as to prevent any considerable intermingling of fishes of the different races. The geographical configuration of the ocean bed lends further probability to these conclusions. Reference to a contour map of the British fishing grounds show that off the southern and southwestern shores of the British Isles are three submarine plateaus, separated from one another by deep depressions; one of these plateaus is adjacent to each of the three localities frequented by the separate races of mackerel. On these plateaus in the deeper layers of water the temperature is probably favorable for the mackerel during the winter. The deep depressions between the plateaus apparently form relatively impassable barriers to the mackerel, and thus delimit the area normally inhabited by them. This geographical distinctness of their winter habitat probably effectually prevents intermixture of the different races while away from the shores during the cold season. But in order to completely preserve the purity of the local varieties the spawning grounds of each race must also be separate from that of the other races and constantly in nearly the same locality from year to year. It is well known in the case of many kinds of fishes that they instinctively return to the waters in which they were spawned. This is doubtless true of the mackerel, and would suffice to prevent intermixture of the local races during the breeding season. With regard to the course of the migrations, they can probably take place only through comparatively short distances; otherwise the chances for intermixture increase and the different races could hardly be maintained. "Indeed the only migration which can, for the most part, be conceded, are migrations from shallow to deep water off the same coast." There is one exception to this, which proves the rule. The North Sea mackerel are racially identical with those of the Channel, and there must therefore be a

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complete mixture between mackerel of the two regions during the winter. The North Sea fish, then, must migrate through the Channel; only by that way is the warm, deep water accessible to them in the winter. Here, then, is a case in which racial identity coincides with the geographical conditions which are such that the winter habitat and the course of the migrations of the fishes of the two localities cannot be separate. These facts all point strongly to the conclusion that the racial distinctness of the fishes of these different localities indicates the geographical distinctness of the winter habitats, of their spawning grounds, and of their courses of migration, and further, that the length of their migrations can scarcely be of greater extent than from shallow to deep water off the same coast.

Similar investigations of the American mackerel have been undertaken by the United States Fish Commission. Their work led to the following conclusions:

"1. The existence of a marked racial distinction between American and British mackerel, as indicated by the studies of Garstang is strongly confirmed.

"2. The evidence thus far accumulated fails to disclose the existence on the American coast of distinct bodies of mackerel, characterized by color or structural features, such as are found on the shores of the British Isles. The examination of further material from extreme southern and northern localities is desirable, however, before the question can be considered settled."*

This discussion of the migrations of the common mackerel may be summarized as follows: The spawning season of the mackerel occurs later in the season in the schools appearing further north; this is probably due to the arrival on the coast of new schools which have moved in from deeper water not far away: the capture of mackerel in nets near the shore before they have appeared at the surface further out, the presence of slightly digested mackerel in the stomachs of codfish taken in the winter, the capture of mackerel in trawls in winter,

* Report, U. S. Fish Com., 1900, 127.

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—these facts indicate the presence of mackerel in deeper strata of water before the spring migration: careful comparison of variable external characters of mackerel from different localities has shown that separate local races exist, while adjacent to the summer haunts of each of these local races, on the British coast at least, is a limited area of ocean of such a depth as to preserve in winter a temperature suitable to the mackerel, but separated from other similar areas by barriers of much deeper water which the mackerel apparently do not readily cross.

All these facts seem to indicate that in winter the mackerel live in the deeper layers of the sea where they find suitable conditions, probably at no great distance from their summer habitat. Their migrations, then, are limited for the most part to movements between the surface waters of the coasts and the deeper layers of water off the same shores.

III. *Abundance.*—The remarkable abundance of the common mackerel in our waters has often been noted even since Colonial days. Francis Higginson, in his "Journal of His Voyage to New England, 1629," speaks of seeing off Cape Ann, June 26, "many schools of mackerel, infinite multitudes on every side of our ship." There are several other similar notices in those early days. In later times almost incredible stories of immense schools of mackerel have been told by fishermen. Captain Harding, of Swampscott, Mass., thus describes a school which he saw in the South Channel in 1848. "It was a windrow of fish, about half a mile wide and at least twenty miles long, for vessels not in sight of each other saw it at about the same time." Schools have been seen so large that only one edge was visible at a time.

The abundance of the mackerel at various localities along the coast is subject to great fluctuations from year to year. In some places, in fact, where they are usually so numerous that important fisheries are carried on, they have at times almost disappeared for a series of years, subsequently returning again after a longer or shorter absence. Although usually abundant on the United States coast,

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they have some times been rare, and indeed there is some reason for believing that, in the early history of the country, they were totally absent for several years. These periods of scarcity have often been erroneously attributed to overfishing, and this is the reason for the useless restrictive legislation which has been intermittently applied to the mackerel fisheries since as far back as Colonial times.

The causes which bring about these fluctuations in the abundance of the mackerel are very little understood at present on account of the difficulty of direct observation on the conditions to which their lives are subject. It is perhaps not entirely certain that the non-appearance of the mackerel in a given locality signifies their absence from that place; they may be present in the depths and refuse to "show up" at the surface on account of some unusual conditions of the food supply or for some other reason. It is probable, however, that the apparent abundance or scarcity of the fish is real. Merely local variations in numbers may be due to variations from year to year in the course of their migrations, but a general abundance or scarcity, throughout a large area, must of course be caused by a variation in the total numbers of the mackerel.

Variations in the course of their migration may perhaps be induced by the presence or absence in particular localities of an available food supply, or by the unusual number or occurrence of enemies, or by some irregularity in temperature or other conditions somewhere in their path which may turn them aside. On the other hand, the extreme fluctuations of the actual numbers of the mackerel is probably to be explained as the cumulative result through a series of years of a succession of favorable or of unfavorable conditions in the environment.

The numbers of mackerel in existence at any particular time must depend on the balance of the various external influences in the world round about them; such influences, for example, as the water temperature at the time of spawning and during the incubation of the eggs, the direction and strength of currents which may affect the fertilization of the eggs, the size and density of the schools of spawn-

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ing fish, the abundance of other carnivorous fishes which feed on the young and adult mackerel, and the existing number of fishes and other organisms which furnish the food supply of the mackerel themselves. Independently of the others, each of these conditions may vary from year to year about a certain average. Some of these conditions will be favorable at times when the remainder will be unfavorable, but in most years, according to the law of chances, the favorable and unfavorable conditions will nearly counterbalance, so that usually there are nearly the average number of mackerel in existence. But in exceptional years the favorable and unfavorable influences do not offset each other, but one set of conditions is so predominant that either a far greater number of mackerel survive than usual or a much greater number perish. For instance, if a large number of eggs are fertilized and hatched, if a smaller number of enemies are present than usual, if the food supply is unusually abundant, then more mackerel will survive than usual, and if such exceptional conditions exist for a series of years, then they will thrive in extraordinary abundance. But such an exceptional state of circumstances can not long exist unless the environment as a whole is changing. Each of these conditions, in order to maintain an average, must return to the mean, and then after a longer or shorter time vary to the other side of the mean and become unfavorable. Then, when the sum total of conditions becomes exceptionally unfavorable and remains so for a series of years, a period of exceptional scarcity of mackerel results. Thus the balance of forces swings back and forth about the mean, and an extreme fluctuation in the numbers of mackerel results.

Such an alteration in the abundance and scarcity of a species, due to a fluctuating combination of favorable and unfavorable conditions, is a universal principle throughout the animal and plant world, and is the means by which the numbers of individuals of a species are kept constantly adjusted to the fluctuating conditions in the environment. The mackerel doubtless forms no exception to this general law, and the causes of its variation in numbers must be due to vary-

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ing combinations of the conditions in its environment. It is impossible at present to speak more definitely on this subject, and the time is probably considerably remote when our knowledge of specific conditions in the vast and comparatively inaccessible spaces of the ocean is such as to enable us to predict the movements of schools of the mackerel and the times of their abundance and scarcity.

IV. *Reproduction.*—The first investigation of the breeding habits of the mackerel was made in 1865 off the coast of Norway by the Norwegian scientist, Professor Sars. He found that the mackerel spawns in coastal waters and that the eggs are buoyant. His observations have later been confirmed and extended by other naturalists, both European and American. At Plymouth, England, where the eggs and young have been carefully studied by Cunningham, spawning fish are taken from 14 to 50 or more miles from the coast while the temperature was about 54° F. and the water density, 1.0269. The breeding season varies in different localities, being considerably later towards the north than at the south. In America the mackerel spawn in May in southern New England; in May and June in Massachusetts Bay, and in June and early July in the Gulf of St. Lawrence. Spent fish have been taken off of the Virginia coast in April. In Europe the spawning season is in March and April in the Gulf of Marseilles, in May and June off the southwest coast of Ireland, from the end of May to the end of July on the southwest coast of England, and during the first half of July along the Norwegian coast.

The fish of the first spring schools are very poor and of comparatively little value as food. Ripe males will take the hook, but ripe and spawning females can be captured only in nets.

The eggs are spherical and transparent; the yolk is simple, but with a large oil globule which distinguishes it from the cod's egg. The diameter of the egg is about one-twentieth of an inch. At a temperature of 68° F. the incubation period is about six days. The number of eggs in a medium sized female has been estimated at a little less than half a million.

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V. *Rate of Growth.*—The rate of growth of the mackerel is not known to a certainty, since those who have investigated it have reached somewhat different results. The following table shows in brief the length of mackerel of different ages according to the estimates of different European and American observers. Similar figures for the cod and herring are added by way of comparison. The original measurements in millimeters are reduced approximately to inches.

AGE.	Mediterranean.	Cornwall.	British Coasts.	America.	Cod.	Herring.
	Marion and Gourrett.	Dunn.	Cunningham.	Atwood.	Dannevig.	Meyer.
1 month.....	.....	.....	.5 to .8	.....	.6	.62
2 months.....	1.6 to 2.	2.8 to 3.2	.....	2.8 to 3.2	2.2	1.24
3 "	2.8	.....	.....	.....	2.8	1.8 to 2.0
4 "	4.0 to 4.4	.....	.....	.....	3.4	2.2 to 2.4
5 "	4.8 to 5.2	.....	.....	.....	4.6 to 6.25	2.6 to 2.82
6 "	5.8 to 6.0	6.4 to 7.2	.....	6.4 to 7.2	.....	.....
8 "	6.8 to 7.2	.....	.....	.....	.....	.....
12 "	9.2 to 9.6	8.4 to 9.2	8.8 to 9.2	.....	.....	.....
16 "	.....	.....	5.6 to 8.0	.....	.....	.....
22 "	.....	.....	.....	.....	14.0 to 16.0	.....

Young mackerel, newly hatched from the egg, are one-fifth inch in length, according to Cunningham. They have not been reared in confinement to a greater age than four days. "Blinks" are supposed to be two years old, "tinkers," three years, and adults of 17 or 18 inches, four years old.

Observations as to the age and size of mackerel at the time of sexual maturity are as yet too few to justify general conclusions. Marion states that fish 9 inches long in February, which he thought to be a year old, had the reproductive organs well developed.

At Plymouth, in June, Cunningham found no signs of maturity in

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fish 8.7 to 9.2 inches long, nor in a female 10.5 inches. The smallest ripe female which he found was 11.5 inches, and the smallest ripe male 11.8 inches.

VI. *Food.*—The mackerel, as stated above, is a surface feeder and lives exclusively upon free-swimming organisms. These organisms are of two different kinds, each of which it captures in a different way.

The young mackerel and the mackerel of the early spring schools feed upon all sorts of minute surface creatures, such as small crustacea, larval invertebrates, etc. These it captures in the same way as the menhaden, by swimming open-mouthed through the water and straining the sea-water through its gill rakers. This includes what is known to the fishermen as "redseed."

During the latter part of the summer, however, and until the autumn migration away from the coasts, small fishes and the young of other species become plentiful, and the mackerel then feeds chiefly on these. These they hunt by sight, and capture them chiefly by darting at them individually.* The most important of these fishes are, perhaps, the sand launce, anchovies, silversides, young hake, smelt, and young herring and menhaden.

VII. *Enemies.*—According to Goode, the gannet is perhaps the most destructive enemy of the mackerel. Porpoises and whales also feed on mackerel schools. Their worst enemies among the "finny tribes" are the mackerel shark and dogfish. In shallow water, also, squid feed on the young mackerel, in the capture of which they show a considerable degree of ingenious strategy by changing their color until it so perfectly resembles that of the sand that they are invisible.

THE CHUB MACKEREL OR THIMBLE-EYE.

(*Scomber colias.*)

PLATE IV.

The Chub Mackerel is of very wide distribution and occurs in the Atlantic and Pacific oceans, north to England, Maine, and San

*Allen, Jour. Mar. Biol.,

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Francisco; it is very common in the Mediterranean, at the Madeiras, and at Southern California. It is said to be plentiful at the Cape of Good Hope. This is the "Spanish Mackerel" of English writers.

The abundance of the Chub Mackerel on the coasts of the United States has always shown great variation. At the beginning of the last century it was very abundant all along the coast of New England and New York. In 1814 Mitchell wrote of it: "Comes occasionally in prodigious numbers to the coast of New York in autumn. This was memorably the case in 1781 and 1813." Up to 1840 it seems to have been a very abundant fish, but for a number of years after that time it apparently disappeared along the whole coast. In the summer of 1874 a considerable school came into the harbor of Provincetown. It was not present in 1880, but has appeared at intervals since that time. In 1886 it was common. July 19, 1887, a menhaden steamer took 50,000 near Ocean City; on July 25 of that year 6,000 were taken by a mackerel schooner off Manasquan, N. J. At Gravesend Bay, L. I., it was very abundant in 1896, but rare in 1897. According to Dr. Smith, it is abundant in some years in Vineyard Sound and the lower part of Buzzard's Bay. It is caught in traps and also on lines while fishing for Common Mackerel. It usually arrives in the vicinity of Woods Hole about July 15 and leaves late in October.

A peculiar fish taken at Block Island by Dr. Seth E. Meek was supposed to have been a hybrid between the Chub Mackerel and the Common Mackerel.

The Chub Mackerel is a good fish, and compares favorably in that respect with the Common Mackerel. It is inferior in size, however, being not over 14 inches in length.

THE FRIGATE MACKEREL.

(*Auxis thazard.*)

PLATE V.

The Frigate Mackerel finds its natural home in the tropical seas. It occasionally strays north as far as Cape Cod, but is very erratic

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in its movements and rarely reaches the coasts of the United States. It is known on the coasts of Great Britain, where it is called the "Plain Bonito." None were observed before 1880, when it suddenly appeared in countless numbers. Since then it has been somewhat rarely observed. At Woods Hole it is rare; the first one recorded was taken at Menemsha Bight in 1885; one was taken in a pound, June 29, 1892. One was taken at the mouth of Narragansett Bay in the autumn of 1904.

It reaches a length of about 15 inches. It is a comparatively poor fish and of little value as food.

THE HORSE MACKEREL, OR TUNNY.

(*Thunnus thynnus.*)

PLATE VI.

The Tunny is found in all warm seas. In the Atlantic it occurs as far north as Newfoundland and the Lofoden Islands; in the Pacific as far north as Monterey Bay and Japan. It is sometimes very abundant on our Atlantic coast, and is taken in rather large numbers off Block Island, Cape Cod, and Cape Ann. It was formerly plentiful at Woods Hole, but a few years ago it was becoming rare. Of late it has been becoming more common around Newport and Narragansett Pier. In 1903, 79 were shipped from Newport, and in 1904, 336; in 1905, 91. Mr. Brownell, of Tiverton, R. I., says that in the autumn of 1904, off Long Island, he ran through an immense school of these fish, extending for ten miles. It is present from June to October, but is most abundant in July.

Little is known of its breeding habits, but it is said to spawn in June. According to Yarrell, the recently hatched young weigh 1½ ounces and grow to 4 ounces by August, and to 30 ounces by October.

The Horse Mackerel is pelagic and carnivorous in its habits; the menhaden is said to form its chief article of diet. This is by far the

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largest fish of the mackerel family and among the largest of the whole group of Teleosts; specimens 15 feet long have been taken weighing 1,500 pounds. In European waters they apparently do not reach so great a size; a 500-pound fish there is considered a monster.

As a food fish it has been considered of great value in the Old World since the time of the ancient Romans. In this country it has never been so highly prized. When it first appears on the coast it is poor and of little value, but during the summer it becomes very fat and valuable for its oil. Its flesh is eaten fresh, or salted, or preserved in cans. In Southern California it is very highly regarded as a game fish.

THE BONITO.

(*Sarda sarda.*)

PLATE VII.

The Bonito occurs on both coasts of the Atlantic. On the United States coast it is found occasionally in the Gulf of Mexico, off Cape Hatteras, at the mouth of the Chesapeake, and north to Cape Cod. Specimens have been taken about the Canaries and Madeira, at the Cape of Good Hope, and in the Mediterranean, and it occurs north in British waters.

The Bonito finds its most natural habitat in the open ocean, wandering about in large schools which are very erratic in their movements. It is said to approach the land only for spawning purposes and when attracted by an abundance of food. It is extremely active and predacious, and its insatiable appetite is perhaps unsurpassed even by that of the bluefish.

In the early part of the last century it was apparently not abundant. In 1815 it was spoken of by Mitchell, in 1842 by De Kay, and in 1856 by Gill; in the early seventies, however, it became exceedingly abundant in the waters about Block Island and the east coast of Long Island. Since that time it has been common in some localities, though fluctuating greatly in numbers from year to year. At

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Woods Hole it is usually common, though sometimes quite scarce. in traps at Menemsha as many as 1,000 a day have been taken in July, August, September, and early October.

It feeds on other fishes, especially mackerel and menhaden. It is an excellent food fish, being scarcely surpassed in this respect by any other. It reaches a length of 2½ feet and sometimes weighs 10 or 12 pounds.

THE SPANISH MACKEREL.

(*Scomberomorus maculatus.*)

PLATE VIII.

The Spanish Mackerel is confined to the Atlantic and Pacific coasts of America; on the Atlantic coast it ranges from Maine to Brazil. In the West Indies it has been found about Jamaica and Porto Rico, but is said to be unknown at Cuba.

Like most of the other fishes of this family, the Spanish Mackerel has shown great fluctuations in abundance. In the early part of the last century it was scarcely known. The first definite allusion to the fish in literature was made by Mitchell in 1815. In 1854 Gill referred to it as a species of slight importance. According to Mr. J. M. K. Southwick, the first Spanish Mackerel taken in the vicinity of Newport were found in the summer of 1857. It was not until about 1870 that this fish came in sufficient numbers to be of any importance.

It is very gregarious in its habits and sometimes forms enormous schools of many square miles in area. "The fish make annual excursions to the coast of the United States in summer; starting from their home in the warmer waters of the South, or, perhaps, from the deeper waters along the inner edge of the Gulf Stream, in the early spring and proceeding northward or landward as the season advances. After remaining for a few weeks, or months at most, they again move southward, or seaward, and at the approach of cold weather entirely disappear. They seem to prefer water ranging

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from 70° to 80° F., and seldom enter that which is colder than 65°.

"Off Charleston, S. C., the fish are first seen about the last of March, and late in April they enter the sounds of the North Carolina coast. By the 20th of May the vanguard reaches the Chesapeake, and others follow in rapid succession, so that by the middle of June the capture of mackerel constitutes the principal occupation of the fishermen. Off Sandy Hook the first individuals are not seen till late in July, and from that time they continually increase in numbers till the middle or even the last of August. Their time of arrival at Narragansett Bay is about the same as that for Sandy Hook. In this northern region they remain till the middle of September, after which the number gradually diminishes, and by the first of October the last individuals have disappeared. A little later they leave the Chesapeake, and few are seen on the Carolina coast after the first of November. Their summer movements are doubtless affected to a considerable extent by the movements of the menhaden and other small fishes on which they feed, as they are usually most plenty in the localities where these fish are found."*

Prior to 1880 nothing definite was known regarding the spawning habits of the Spanish Mackerel. In that year an extensive investigation of the matter was carried on by Mr. Earll, and at subsequent times our knowledge has been further increased by the work of the United States Fish Commission. It has been shown that this fish spawns along many portions of the Atlantic coast in midsummer. The temperature seems to have a decided effect on the spawning time, since the reproductive organs apparently do not develop until it is about 70° F. They spawn on the Carolina coast in April or May, in the lower Chesapeake during the first half of June, and at Sandy Hook and Long Island during the last of August. The spawning season in any particular locality lasts from six to ten weeks; the time of spawning for individuals of the same schools varies considerably, and each fish is a number of weeks in depositing its eggs. The eggs are very small, being about one-twenty-fifth inch in dia-

*Earll, quoted from Nat. Hist. of Aquatic Animals, U. S. Fish Com., 1884, 310.

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meter; they are very numerous, and a six-pound fish will produce 1,500,000 eggs. The eggs are buoyant. The period of incubation is about twenty-four hours. When hatched the young are very small, transparent, and about one-tenth of an inch in length.

It usually weighs from 6 to 10 pounds. One of the largest ever taken was captured in October, 1901, off Chesapeake Bay; it was 41 inches long and weighed 25 pounds. Very little is definitely known of the rate of growth, but it is believed that it grows very little in the first two years of its life and does not exceed a half-pound in weight at the end of that period.

KINGFISH, OR CEREEEN.

(*Scomberomorus regalis.*)

PLATE IX.

This fish is apparently confined to the western coast of the Atlantic, though it is not common anywhere except about Florida and Cuba. It ranges from Cape Cod to Brazil. It closely resembles the Spanish Mackerel and is not usually distinguished from it by the fishermen. At Woods Hole it is not uncommon; it appears in Vineyard Sound about July 1, where it is said to be more numerous than the Spanish Mackerel. It is rare in Narragansett Bay. This is one of the largest of the mackerel, reaching a length of 5 or 6 feet and a weight of 20 pounds. It is an excellent food and game fish. It feeds on other fishes. Little is recorded of its habits.

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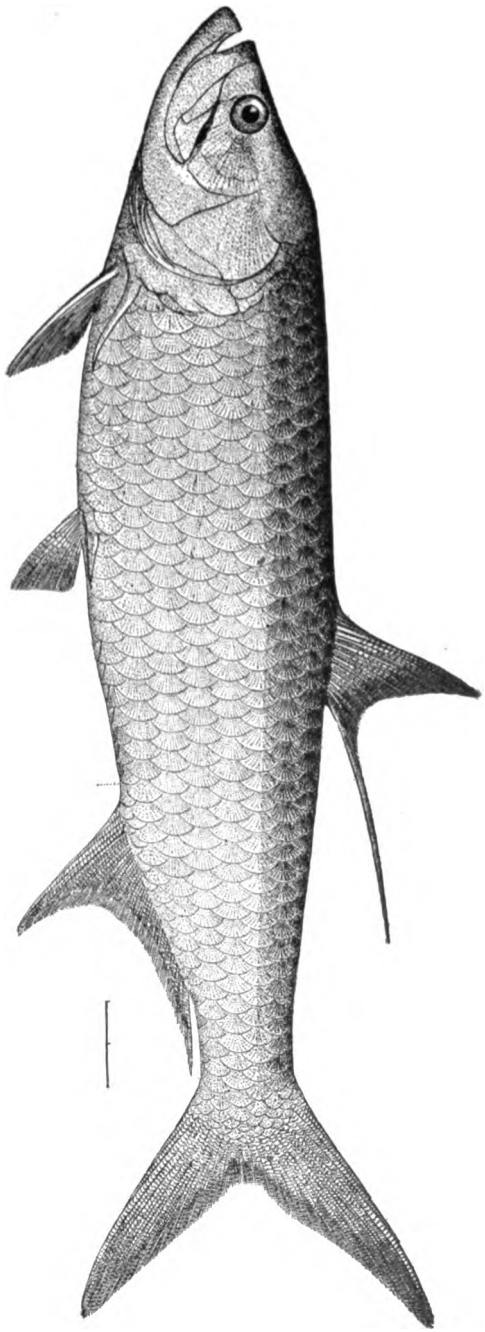

TARPON
(Tarpon atlanticus).
PLATE 1.

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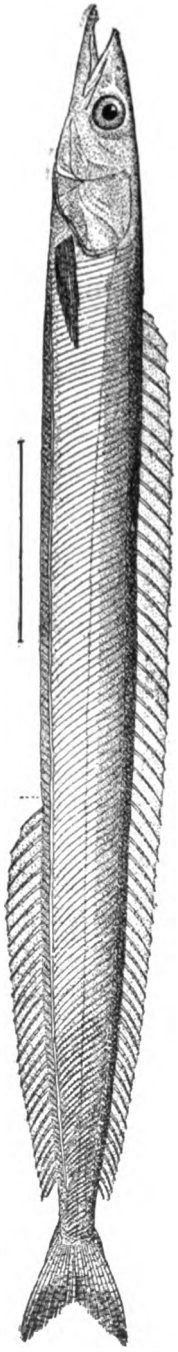

SAND LAUNCE
(Ammodytes americanus).
PLATE II.

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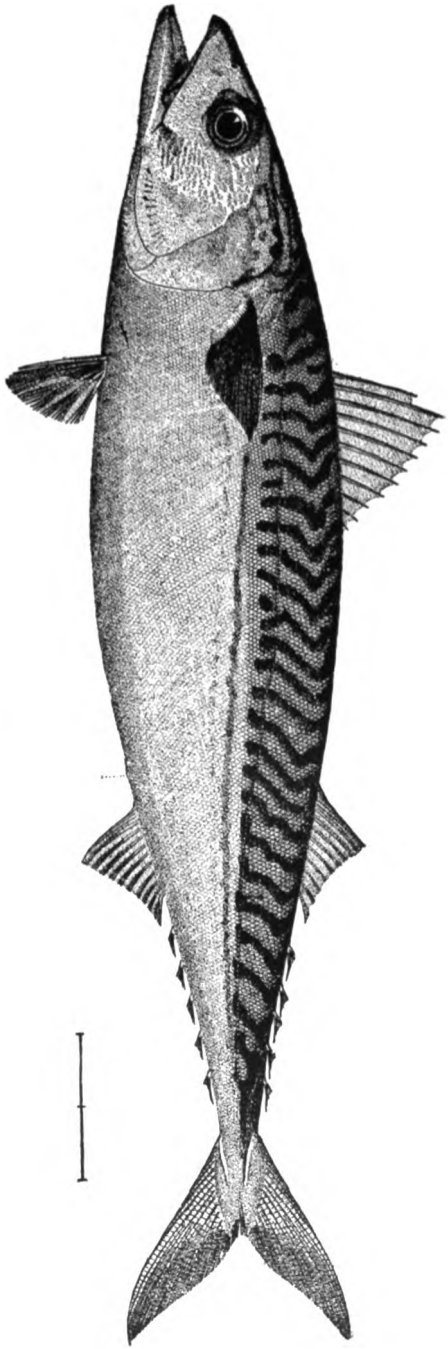

THE MACKEREL
(Scomber scombrus).
PLATE III.

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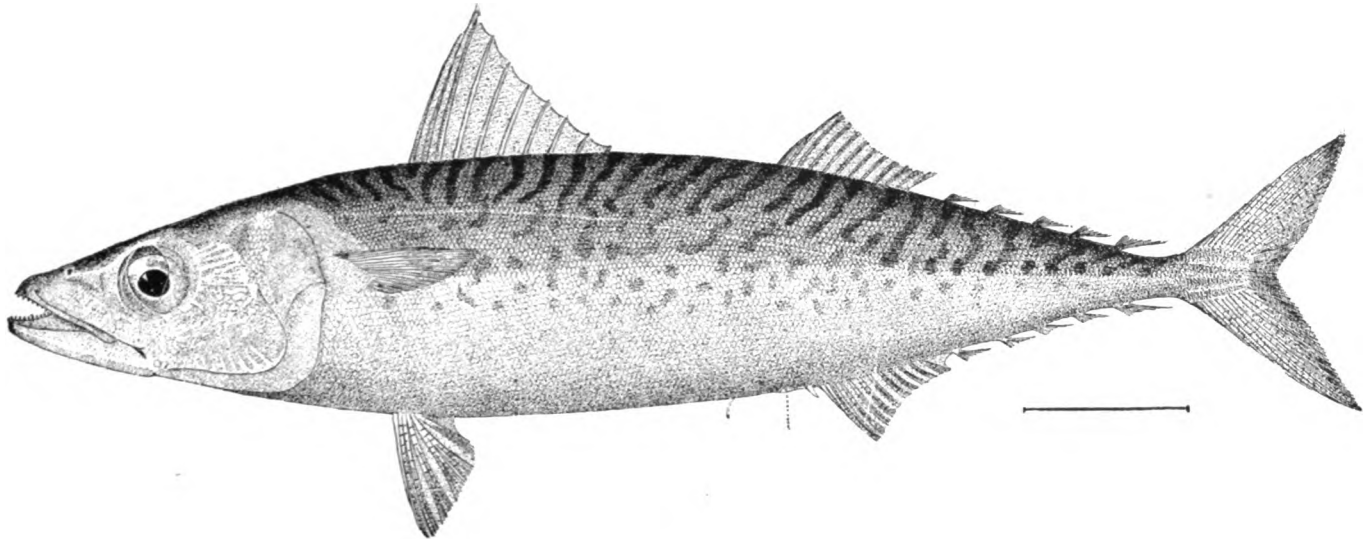

CHUB MACKEREL. "THIMBLE-EYE
(Scomber collias).

PLATE IV.

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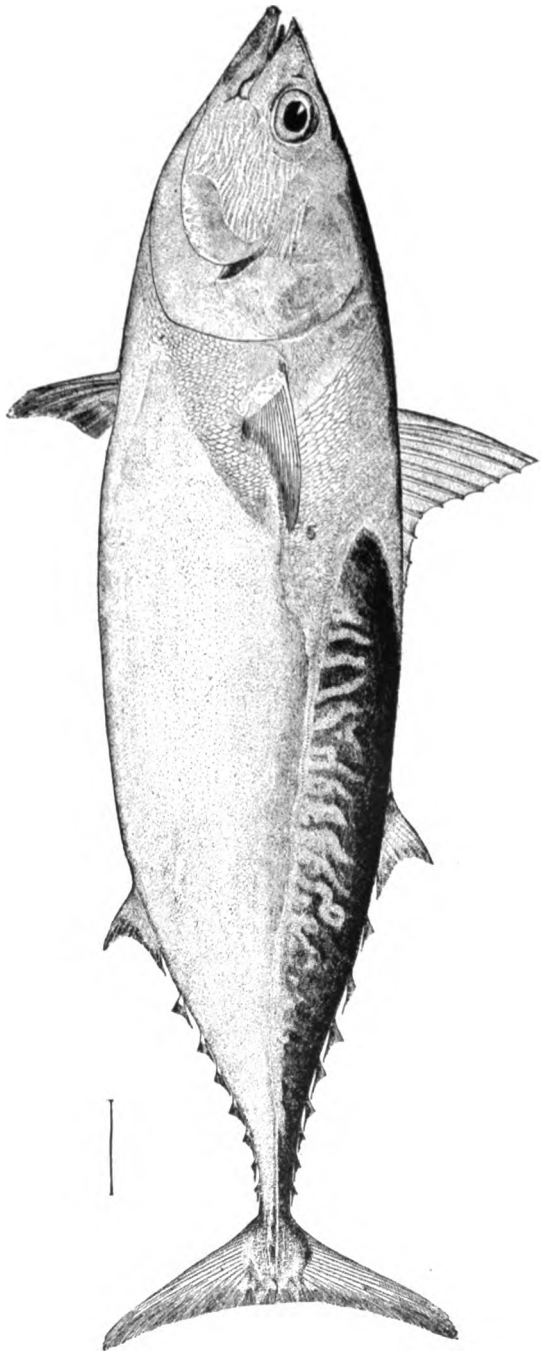

FRIGATE MACKEREL
(Auxis thazard).
PLATE V.

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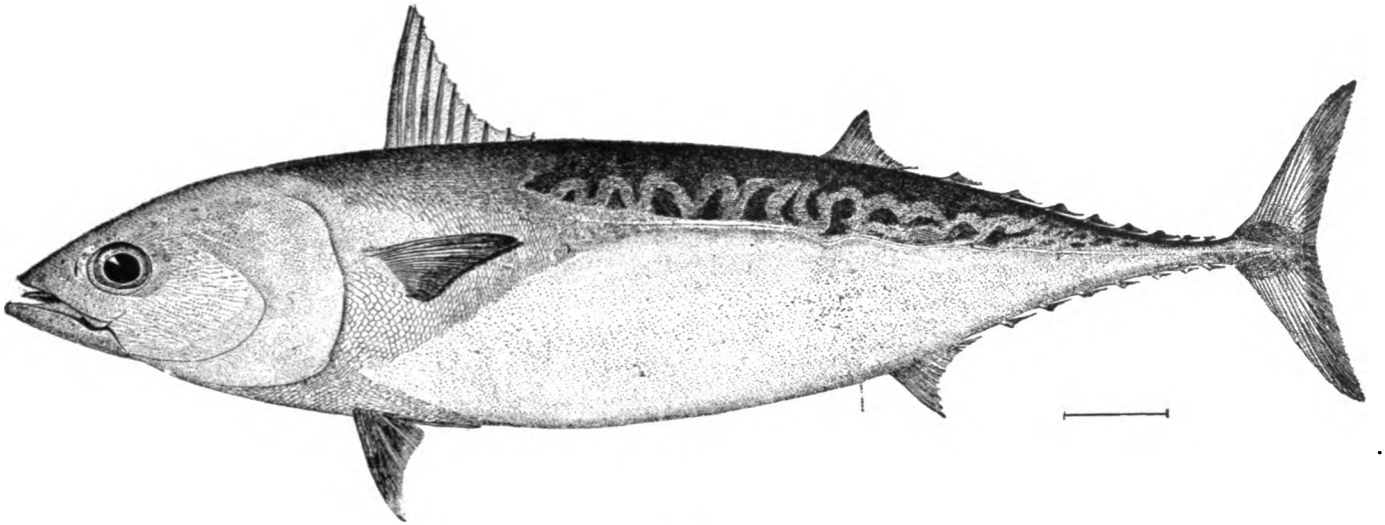

HORSE MACKEREL. TUNNY.
(Thunnus thynnus).
PLATE VI.

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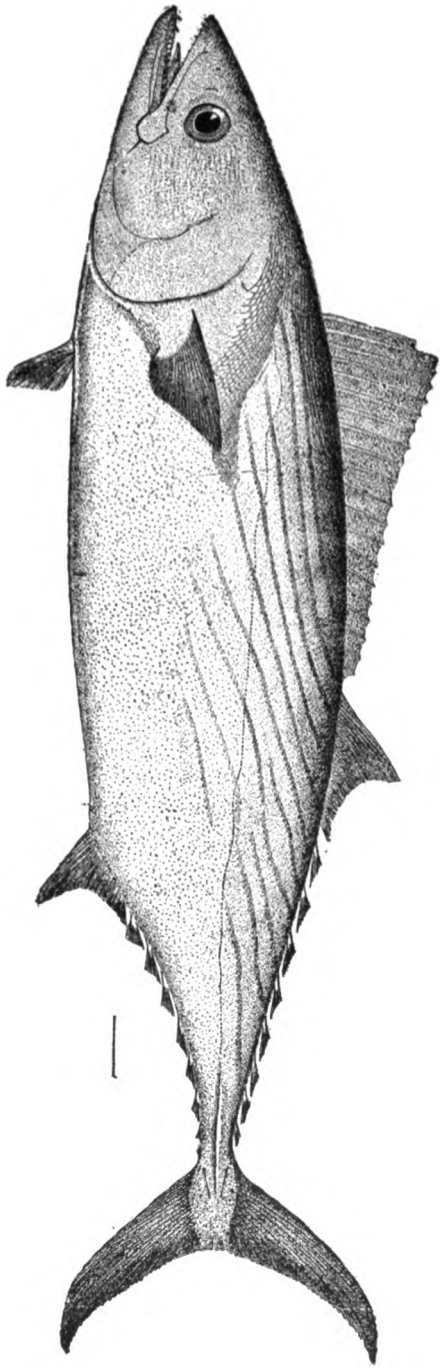

Bonito
(Sarda sarda).
PLATE VII.

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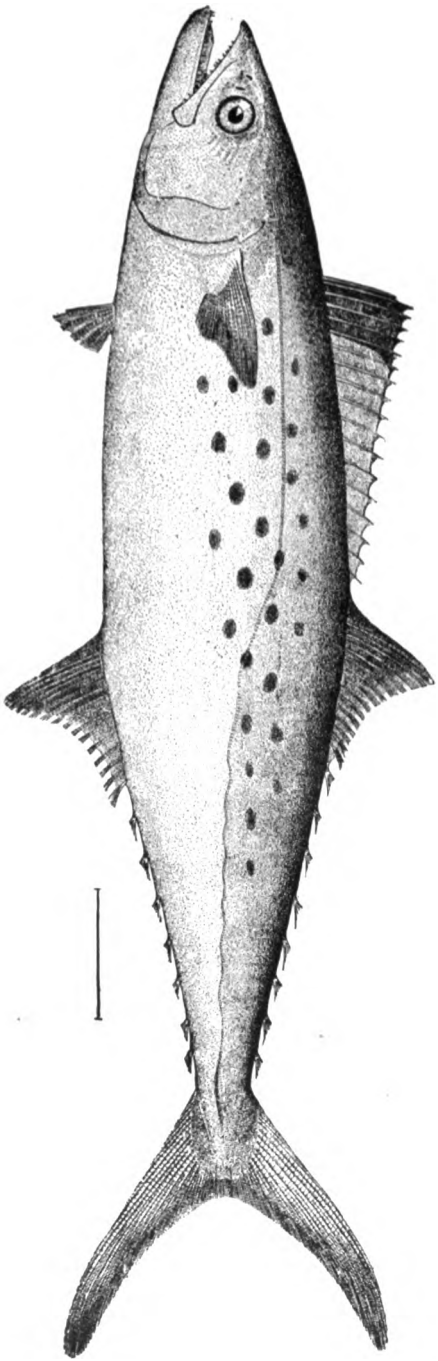

Spanish Mackerel
(Scomberomorus maculatus).
Plate VIII.

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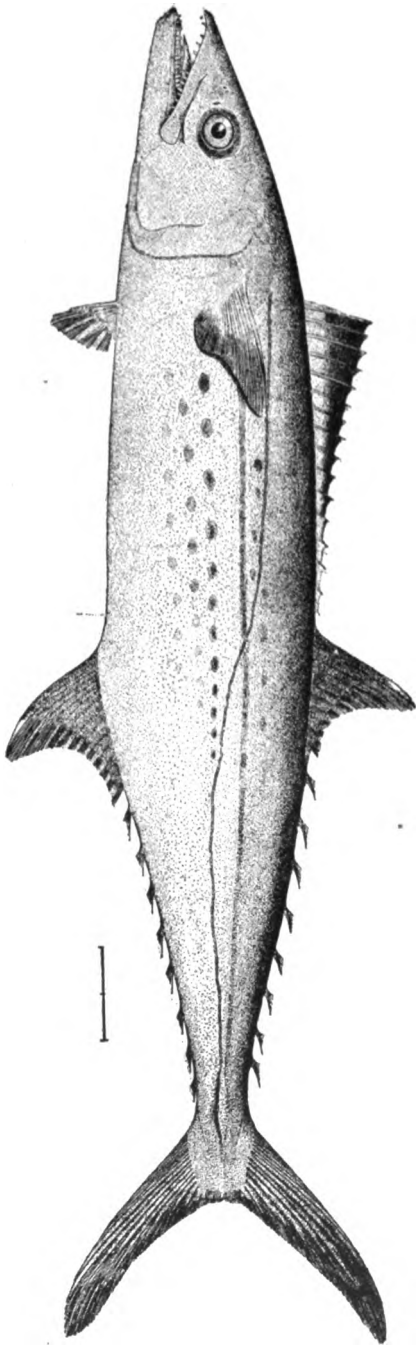

CERO. CERRA
(Scomberomorus regalis).
PLATE IX.

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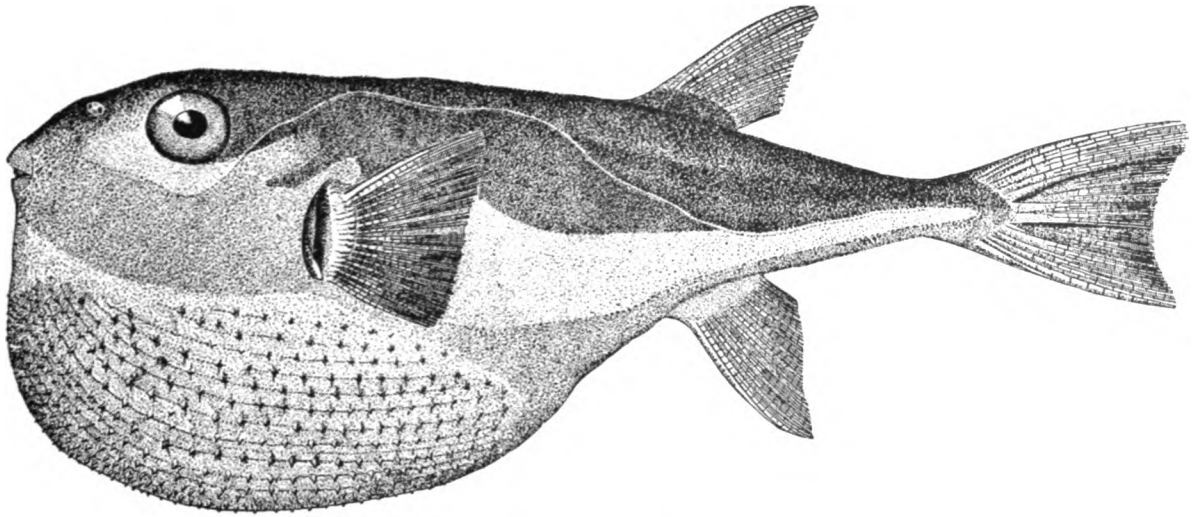

THE SMOOTH PUFFER
(Lagocephalus laevigatus).
PLATE X.

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THE FISHES OF RHODE ISLAND.

IV. A LIST OF RARE FISHES TAKEN IN RHODE ISLAND IN THE YEAR 1906.

BY HENRY C. TRACY, A. M.,

BROWN UNIVERSITY.

1. Dasyatis centrura. *Sting Ray.*

A small specimen 3 feet, 4 inches long, was taken August 8 in a trap on the west side of Narragansett Bay, at Goose Neck, about half way between Wickford Light and Fox Island. It had on its head, just back of the eye, a large parasite, which was identified as Branchiobdella ravenelii. The Sting Ray is said by fishermen to have been much more abundant formerly than now. At the present time, in Narragansett Bay, they are small and rare.

2. Tarpon atlanticus. *Tarpon.* Plate I.

An unprecedented number of these fishes were taken in Rhode Island waters during the past season. This is usually a very rare fish and only a very few instances of its capture here are on record, though there have doubtless been cases not reported.

For the following information we are indebted to Mr. J. G. Costello, of the *Newport News*. On August 11, 1906, Mr. John Souza, of Newport, caught three tarpon in his trap off Second Beach near Purgatory. One of these weighed 97 pounds, and the other two together weighed 90 pounds. A few days later, in the same trap, Mr. Souza took two more, each somewhat smaller than the large one above referred to. About the first of August a medium sized tarpon was taken by Mr. Lawton in a trap in Mackerel Cove.

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Mr. Costello has also collected the following instances of the capture of tarpon which have not previously been recorded. About the year 1895 two tarpon were taken in a trap in Coddington Cove just north of Newport; one of these weighed over 100 pounds. Later, one was caught north of Coddington Cove, at Bailey's Point in Middletown, and sometime after that, another was secured off High Hill, on the Portsmouth shore of the Sakonnet river. All these fish were taken in the month of August.

3. **Ammodytes americanus.** *Sand Launce.* Plate II.

A specimen of this fish, 9 inches long, secured by Mr. J. M. K. Southwick, was taken off Newport about the first of July. It is very likely that this fish is much more abundant in these waters than the meagre reports of fishermen and others would indicate; its shape and its small size probably prevent its frequent capture in the large-meshed fish traps. It forms schools containing very large numbers of individuals, and is an important item in the food supply of such fishes as the cod, halibut, and mackerel.

4. **Caranx hippos.** *Crevalle; Hardtail.*

This species was taken several times in the Lewis Brothers' traps in the West Passage of Narragansett Bay during August and September. It is usually associated with the nearly related species, **Caranx crysos,** though not so numerous as the latter. In these waters large specimens are rare; the usual size is not far from 8 or 10 inches in length.

5. **Alectis ciliaris.** *Thread Fish.*

This is an exceedingly rare fish, and only a very few specimens have ever been taken in Rhode Island waters. One was taken about September 15 in one of the Lewis Brothers' traps in the West Passage of Narragansett Bay.

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6. Vomer setipennis. *Pug-nosed Shiner; Dollar Fish.*

A remarkably large number of these fishes were present in Rhode Island waters last season. Young specimens are not uncommon most years, though adults are usually very rare. During the last season, however, adults were rather numerous; from the first of August until the last of September, traps in the West Passage were found at nearly every haul to contain from one to a half dozen or more of these fishes. A male specimen taken on September 11 gave milt on gentle pressure. For a picture of this remarkable fish see the report of last year (1906), Plate III.

7. Selene vomer. *Lookdown; Moonfish.*

A specimen of this singularly-shaped fish, taken October 5, 1906, at Second Beach, Newport, was presented to the Commission by Mr. W. T. Luth. This species is rare, and only a few specimens have been previously recorded from Rhode Island. They are usually captured in late summer and early autumn.

8. Lobotes surinamensis. *Triple-tail.*

Only one specimen of this fish came to our notice last year. This was taken by Mr. Isaac Lake, of Wickford, in his trap near Sauger Point. This was a medium-sized specimen for these waters, being about 18 inches long. This species, although rare, is a food fish of excellent quality. For a picture of this fish see last year's report, Plate IV.

9. Balistes carolinensis. *Trigger Fish.*

A large specimen, 17 inches long, presented by Mr. Southwick, was secured off Newport about the first of July. Four specimens of Trigger Fish from Rhode Island waters have come to our notice in the past two years; these were all identified by us as **B. carolinensis. B. vetula,** the nearly related species, is apparently much more rare or of irregular occurrence. See Plate V. of last years' report.

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10. Monacanthus hispidus. *File Fish; Fool Fish.*

A small specimen was taken in a trap off the west shore of Conanicut Island, September 11.

11. Lagocephalus lævigatus. *Smooth Puffer.* Plate X.

A specimen of this rare fish was sent us by Mr. C. Abbott Davis, of the Museum at Roger Williams Park. He reported that it was taken by Mr. A. A. Wilbur at East Greenwich on August 25, 1906. This specimen was a female 20 inches in length; the ovaries were large and apparently only partially spent.

Several rare fishes are reported to have been taken by the Newport fishermen, but such specimens were unidentified. On August 14, 1906, Mr. Edward Lawton, of Newport, caught a Flying Fish in Mackerel Cove, south of Jamestown. It was said to have been larger and of more brilliant color than any Flying Fish caught in these waters in recent years. From the description given it seemed possible that it may have been **Cypsilurus heterurus,** though definite identification was impossible.

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A LIST OF THE RHODE ISLAND COPEPODA, PHYLLOPODA, AND OSTRACODA WITH NEW SPECIES OF COPEPODA.

THREE PLATES.

LEONARD W. WILLIAMS.

The Entomostraca, the class to which these orders belong, is a group of crustacea which in vast numbers inhabits nearly all bodies of water, fresh or salt. The economic value of these minute forms at first glance seems slight, but their importance as a food supply, the effect of the numbers which live as parasites on fish, and the work they perform in destroying other still more minute forms, injurious to fish, make them a group by no means negligible by the practical fish culturist. Many small fish undoubtedly depend on copepods and phyllopods for food. The stomachs of young pickerel (*Esox reticulata*) which we examined were filled with the remains of phyllopods, while larval lobsters were proved conclusively to prefer copepods and phyllopods to other food. Many food fish subsist partially at least on entomostracas, and the appearance of "schools" of fish may depend directly or indirectly on the presence of these crustacea. The entomostraca, therefore, are one of the most important links in food supply between the lower plants and animals and the higher animals.

This list makes no pretence at completeness, but merely brings together all previously recorded species and those identified in the tows taken during a year and a half. Further work could easily enlarge the list, as the entomostracal fauna of the State is very rich and has received but little study. No especial attempt has been made to obtain fresh-water forms, but such as have been identified are included. The marine forms were largely secured by towing

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during the winter in upper Narragansett Bay, and in summer in the Wickford region and in Charlestown Pond, a brackish inlet from the ocean.

A special examination was made of the common mollusks to find whether they were inhabited by copepods. The mussels and scallops yielded negative results, but the common clam (*Mya arenaria*) was found to be almost invariably the host of a new copepod which occurred also in the quahog (*Venus mercenaria*) and in the sea clam (*Mactra solidissima*). It had been hoped to secure a large number of the forms parasitic on fish, but diligent search throught the summer discovered only a few species, the fish in Narragansett Bay being apparently unusually free from parasitic copepods. Our thanks are here due to Mr. Henry C. Tracy for specimens of a number of parasitic forms.

The species starred in the list are recorded from Rhode Island for the first time.

Copepoda.

Argulus laticauda Smith.

On tautog and eel. Wickford and Charlestown Pond.

Argulus megalops Smith.

On flounder. Matunuck.

*Argulus funduli Kröyer.

On Fundulus heteroclitus. Wickford.

Caligus rapax Milne Edwards.

On the skate, dogfish, and many other fish. Cox Ledge. (M. J. Rathbun: Fauna of New England, 5. List of the Crustacea. Boston Soc. Nat. Hist.)

*Lepeopthheirus edwardsi Wilson.

On flounder. Wickford.

Dinematura latifolia Steenstrup & Lütken.

On Lamna cornubica. Cox Ledge. (Rathbun's List.)

*Lernæenicus radiatus (Lesueur).

On menhaden. Wickford and off Montauk Point.

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Clavella uncinata (O. F. Müller).

On cod and haddock. Cox Ledge. (Rathbun's List.)

Calanus finmarchicus (Gunnerus).

Narragansett Bay. January. This species, so well known as the food of the pollock whale, appeared in winter tows only.

Pseudocalanus elongatus (Boeck).

Narragansett Bay. January and February.

Centropages hamatus (Lilljeborg).

Narragansett Bay. Common throughout the year.

Pseudodiaptomus coronatus Williams.

Narragansett Bay and Charlestown Pond. Abundant throughout the year. Many pairs *in copula* were taken during the summer in Mill Cove, Wickford.

Our attention has been called to the similarity between this species and P. pelagicus Herrick from the Gulf of Mexico, and we admit the striking resemblance in general features. We suspect that Herrick's description and drawings, upon which we depended and which certainly cannot be harmonized with our specimens, may represent a species of which ours is a northern variety. A comparison of the type specimens would be necessary to settle this point. We may note in passing that the structure which Herrick describes as a spermatophore is, in our specimens, a reduced egg-sac containing two, occasionally three, eggs.

Temora longicornis (O. F. Müller).

Narragansett Bay. Abundant throughout the year.

Eurytemora americana Williams.

Narragansett Bay. Throughout the year.

Eurytemora hirunoides (Nordquist).

Narragansett Bay and Charlestown Pond.

Eurytemora herdmani Thompson & Scott.

Wickford. Abundant in summer.

Acartia tonsa Dana.

Narragansett Bay and Charlestown Pond. Summer.

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Acartia clausii Giesbrecht.

Narragansett Bay. Throughout the year.

Tortanus setacaudatus Williams.

Narragansett Bay and Charlestown Pond. Though occurring in winter tows in the bay, this species was not found at all in summer tows in the Wickford region.

Oithona plumifera Baird.

Narragansett Bay. February.

Oithona similis Claus.

Wickford. Summer.

*Oithona nana Giesbrecht

Wickford. This is the first record of the occurrence of this species in American waters.

*Cyclops serrulatus Fischer.

Wickford and Fruit Hill ponds.

*Cyclops lucidulus Koch.

Fruit Hill.

*Cyclops leuckarti Claus.

Mill Pond, Wickford.

Longipedia coronata Claus.

Narragansett Bay and Charlestown Pond.

Ectinosoma normani T. & A. Scott.

Charlestown Pond. Summer.

Ectinosoma curticorne Boeck.

Wickford and Charlestown Pond.

Microstella norvegica (Boeck).

Narragansett Bay.

Tachidius littoralis Poppe.

Upper Narragansett Bay.

Tachidius brevicornis (Müller).

Charlestown Pond. Summer.

Parategastes sphæricus (Claus).

Wickford and Charlestown Pond.

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Diosaccus tenuicornis (Claus).

Wickford and Charlestown Pond.

Dactylopusia vulgaris (G. O. Sars).

Wickford and Charlestown Pond.

Thalestris serrulata Brady.

The record for this species rests on one specimen from Rocky Point.

Harpacticus uniremis Krŏyer.

Upper Narragansett Bay.

Harpacticus chelifer (Müller).

Wickford and Charlestown Pond. Many of the specimens show points of resemblance to H. gracilis.

Idya furcata (Baird).

Narragansett Bay. Common.

*Ilyopsyllus natans n. sp. Plate I.

Body heavy, short, and pear-shaped, except that its ventral edge is almost straight while its back is correspondingly elevated. Color, opaque reddish-brown with scattered brilliant red spots. Rostrum, strong, large, and jointed at base; its apex with two down-curved, ciliated, movable spines. Eye, large, red, T-shaped, with three lenses in front, one on each side, and one in the middle in base of rostrum. The 1st of the ten segments is very large, strongly convex above, and has nearly straight ventral and posterior edges. The following segments taper rapidly to the small abdomen. Thoracic segments of nearly equal width; ventro-lateral angles of first three free thoracic segments form triangular, acute processes, that of the 2nd and 3rd has also an accessory tooth. Preanal abdominal segments of equal width; anal segment very short with a blunt, median, dorsal projection. Posterior edge of the abdominal segments spinose on the belly and sides. Furca short, spinose, with a small, jointed dorsal seta, a minute inner bristle, and two terminal setæ; inner terminal seta as long as body, its proximal half broad and naked, its distal

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half tapering abruptly and plumose exteriorly; outer seta one fourth as long as inner, plumose exteriorly.

Female:—First antenna short, less than half as long as the head segment, and six-jointed; 1st joint large, quadrate, with a row of coarse spines on the inner side of its upper surface; 2nd joint as broad as the first, very short, and prolonged in front into a rounded prominence fringed with blunt spines; 3rd joint smaller, bearing on its anterior distal angle a large esthetask, one third longer than the antenna, and supported by a 2-jointed accessory branch; 4th, 5th, and 6th joints small, about equal, and bearing a number of bristles. Second antenna longer and heavier than the first, three-jointed; 1st and 2nd joints large, a little longer than broad, the 2nd spined on the upper edge at the end; 3rd joint more slender, bearing six strong, curved spines of unequal length. Mandibles and maxillæ reduced and adapted for sucking. Mandible pointed at the end, bearing a two-jointed palp and forming with its mate a tube-like trough. First joint of palp small; 2nd joint elongated and bearing two bristles, one slender and long, the other shorter and plumose on both edges. First maxilla (?) about a third as long as the mandible, and similar in shape, but with two or three slender teeth at apex. The maxillæ appear to be partially enclosed in the mandibular tube. The 2nd maxilla was not found. The maxillipeds are partially united, having a common quadrate basal joint; each branch is further made up of two joints, the first long and slender, the second minute and bearing a rather long seta.

The basipodite of the 1st foot is formed of two broad, heavy joints, each spinose anteriorly, the second with two heavy curved spines at the distal angles; inner ramus 2-jointed, the 2nd joint somewhat longer than the first, with two terminal spines, the inner about a third longer than the outer and slightly plumose on the outer side; outer ramus 3-jointed, twice as long as inner, each joint spinose distally and with a strong curved spine at the external distal angle, last joint with two additional terminal spines. Second to 4th feet alike, both rami 3-jointed and with slender setæ sparingly and delicately plumose.

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Fifth feet forming a symmetrical plate, each side of which is three-lobed, the external lobe bearing a short curved bristle.

Male:—First antenna 8-jointed; two basal joints like those of female antenna; 3rd joint shorter than in the female with similar accessory branch and esthetask; 4th joint of similar size and shape to the 3rd joint of the female antenna, but with an esthetask upon an unjointed projection; 5th joint smaller, broader than long; 6th joint longer than broad, concave in front; 7th and 8th joints small; 7th with a projecting knob in front, 8th with four moderately long bristles.

The 5 foot is similar to that of the female, but is more slender and lacks the bristles.

Length, 0.47 mm.

This species is very similar to I. coriaceus B. & R. (Brady & Robertson, Ann. and Mag. Nat. Hist., ser. 4, vol. xii, p. 132, pl. i), figs. 1–5. 1873; and Brady's Monograph of the British Copepoda, vol. ii, p. 148, pl. lxxxii, figs. 1–10. 1880), and to I. holothuriæ (Edwards) (C. L. Edwards, *Abacola holothuriæ*, Arch. f. Nat. p. 92, pl. 5, figs. 1–17. 1891), but differs markedly from them in its habit of swimming actively near the surface. It was taken in a number of surface tows in the channel of Mill Cove, Wickford. The rostrum and 1st antenna of the female are very similar to those of I. holothuriæ. The 1st foot of male and female and the mouth-parts are similar to those of I. coriaceus. This species has 5th feet entirely different from those figured by Edwards, and we do not find the organ between the fourth limbs of male figured by Brady.

*Lichomolgus fucicolus Brady.

Wickford and Charlestown Pond.

*Lichomolgus adherens n. sp. PLATE II.

Female.—Thorax ovate; cephalic segment forming more than half of thorax, three free thoracic segments nearly equally broad, outer angles rounded. Abdomen 6-jointed, $\frac{1}{18}\ \frac{2}{29}\ \frac{3}{15}\ \frac{4}{30}\ \frac{5}{18}\ \frac{6}{16}\ \frac{7}{20}$. First and 2nd (genital) segments broader than the others; pos-

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terior edge of anal segment beset with spines. Furca with branches slightly divergent, each branch twice as long as broad and bearing two dorsal and four terminal setæ; dorsal setæ short, the outer slightly in advance of the inner; inner terminal seta one-half longer than furca, plumose; 2nd bristle as long as abdomen, jointed at base and plumose; 3rd bristle more than half as long as second and like it jointed at base and plumose; outer bristle shorter than furca, slender, naked. First antenna 7-jointed; length of joints $\frac{1}{18}$ $\frac{2}{22}$ $\frac{3}{15}$ $\frac{4}{30}$ $\frac{5}{18}$ $\frac{6}{16}$ $\frac{7}{30}$ shorter than the cephalic segment; 1st two joints with many flaccid bristles, other joint with fewer bristles. Second antenna 4-jointed; 1st as long as other three combined; 2nd joint about one-third as long as 1st, expanded at tip and bent backward so that the distal limb of the antenna is nearly parallel to the proximal limb; 3rd joint short with three or four strongly curved stiff bristles upon its distal lower angle; 4th joint with seven long curved unequal terminal bristles; the upper edges of the last two joints are fringed with short spines. Mandible strong with a hooked toothed and jointed terminal claw; palp(?) one-jointed with three strong, and as many slender, bristles. First maxilla(?) one-jointed with three irregular lancet-like bristles. Second maxilla two-jointed; proximal joint much swollen with two lancet-like plumose bristles on its inner edge; distal joint small, with one large heavy claw and two heavy bristles. Maxilliped two-jointed; proximal joint bearing a small lobe (inner ramus ?) with two large bristles; distal joint long, broadly elliptical, with a single two-branched terminal claw, anterior branch bristle-like, posterior branch larger, broad, with four or more bristles on its posterior edge. First to 4th feet with both rami three-jointed. First foot with bristles and spines divergent; 4th foot scarcely differing from the third. Fifth foot two-jointed; distal joint elliptical, twice as long as broad, with two spines on the distal portion of the outer edge, one terminal spine and a short terminal bristle. Two egg sacs. Male not found. Length 1.2 mm.

Wickford, very abundant under small stones between tides.

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*Lichomolgus major, n. sp. Plate III.

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Large, long female, (1.3 mm. male 1.9 mm. without caudal setæ), of transparent grayish or pinkish color. Body tapers regularly from the cephalic segment.

Female.—Three free thoracic segments of equal width and rounded at the sides. Abdomen 5-jointed, relative length of joints and furca $\frac{1}{8}\ \frac{2}{12}\ \frac{3}{7}\ \frac{4}{7}\ \frac{5}{11}\ \frac{6}{13}$. Furca six times as long as broad, with six setæ; one on outer edge nearer the proximal than the distal end of furca, a minute dorsal bristle, and four terminal setæ, inner and outer minute, 2nd twice the length of furca, 3rd one-half the length of furca. The lower portion of posterior edges of the abdominal joints and the lower surface of the furca fringed with heavy short spines. First antenna 6-jointed, a little more than one-half the length of head segment, beset with short bristles, relative length of joints $\frac{1}{16}\ \frac{2}{34}\ \frac{3}{20}\ \frac{4}{8}\ \frac{5}{13}\ \frac{6}{17}$. Second antenna 4-jointed, 1st joint long and directed forward and inward, 2nd and 3rd short, 4th slightly longer and armed below with heavy triangular spines, with two heavy terminal claws and three heavy terminal setæ. Labrum ending in an acute, backwardly directed spine. Mandible with an apparently movable terminal claw which has at base a hemispherical pad beset with recurved bristles. First maxilla with a single shoe-shaped joint from whose tip arises one long and two short bristles; lower surface with a similar trio of bristles. Second maxilla 2-jointed basal joint swollen, terminal joint heavy, straight, spine-like, with one bristle midway upon its posterior edge. Maxilliped absent (?).

First to 4th swimming feet with both rami 3-jointed. Many of the bristles and spines of the legs are irregularly swollen or constricted. The sternite between each pair of legs forms a ridge which is shaped like half of a dumb-bell and has several heavy, flat, spines on each rounded projection. The spines of all legs are entire. Distal joint of basipodite of 1st leg with a broad spine upon its internal angle. The edges of both rami and of the basipodite as well as the distal edge of the 2nd joint of the basipodite are fringed with heavy, triangular, acute spines. Fourth foot does not differ from the others. Fifth foot 2-jointed, 1st joint short with a single bristle upon a slight

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stalk, distal joint three times as long as broad, with a conical end and with two heavy serrate outer spines, a long serrate terminal spine, and a short stalked bristle on its upper surface near the distal end. The outer angle of the basal, and the outer side and end of the distal joint are covered with short, heavy, unjointed spines.

Male.—Thorax like that of female. Abdomen 6-jointed, relative length, $\frac{1}{25}\ \frac{2}{50}\ \frac{3}{30}\ \frac{4}{33}\ \frac{5}{26}\ \frac{6}{45}\ \frac{6}{5}$. Second joint swollen, bearing on each side a fringe of spines and a single bristle. Abdomen otherwise as in female. Antenna and mouth parts as in the female except that a large 3-jointed maxilliped is present, 1st and 2nd joints of maxilliped of equal length; 2nd swollen and with a number of acute tubercles upon its inner side near the base and two rows of tubercles near the distal end of the joint, with a short bristle at the proximal end of each row of tubercles; distal joint sickle-shaped and serrate, enlarged at base and bearing there a small bristle. Feet as in female.

Wickford and Matunuck, in the common clam (*Mya arenaria*) the quahog (*Venus mercenaria*) and in the sea clam (*Mactra solidissima*). Almost every clam and quahog which we opened contained one or more of these copepods in the mantle cavity. A very characteristic matanauplius which is very abundant in the Bay during the spring and summer, resembles this species, and though all efforts to rear the metanauplius were unsuccessful, we suspect that it is the young of this species.

PHYLLOPODA.

*Ceriodaphnia reticulata Jurine.
Mill Pond, Wickford.
*Sida crystallina (Müller)
Mill Pond, Wickford.
*Pseudosida tridentata Herrick.
Mill Pond, Wickford.
*Scapholeberis mucronata (O. F. Müller).
Wickford. Common throughout the eastern United States.

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*Podon polyphemoides Leuckart.

Abundant in the tows taken in the middle of Narragansett Bay together with the following species. Summer.

*Evadnè normanni Lovén.

Abundant in tows from Wickford to Newport. Summer. We have been able to find no previous American record for this or the preceding species.

*Camptocerus macrurus (O. F. Müller).

Mill Pond, Wickford.

*Polyphemus pediculus (Linné).

Mill Pond, Wickford.

Limnetis gouldii Baird.

Near Providence. (A. S. Packard, Twelfth ann. rept. U. S. geol. & geogr. sur. for 1878 (1883), pt. 1.)

Eubranchipus vernalis (Verrill).

Pawtucket, Newport. (Packard.)

Ostracoda.

*Sarsiella zostericola Cushman.

Wickford. In tow taken at night. This species has been previously reported from the Wood's Hole region only.

*Loxoconcha impressa (Baird).

Wickford. On eel grass and in dredgings.

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Plate I. ILIOPSYLLUS NATANS. n. sp.

♀	Female, x 20.
R	Rostrum, eye, and basal joints of first antenna of female, x 360.
F	Furca, x 44.
A^1♂	First antenna of male, x 360.
A^1♀	First antenna of female, x 360.
P^5♀	Fifth pair of swimming feet of female, x 360.
P^5♂	Fifth pair of swimming feet of male, x 360.
MP	Maxillipeds, x 360.
MX	Maxilla (first or second?), x 360.
M	Mandible, x 360.
P^1♂	First swimming foot of male, x 360.
P^1♀	First swimming foot of female, x 360.
A^2	Second antenna, x 360.

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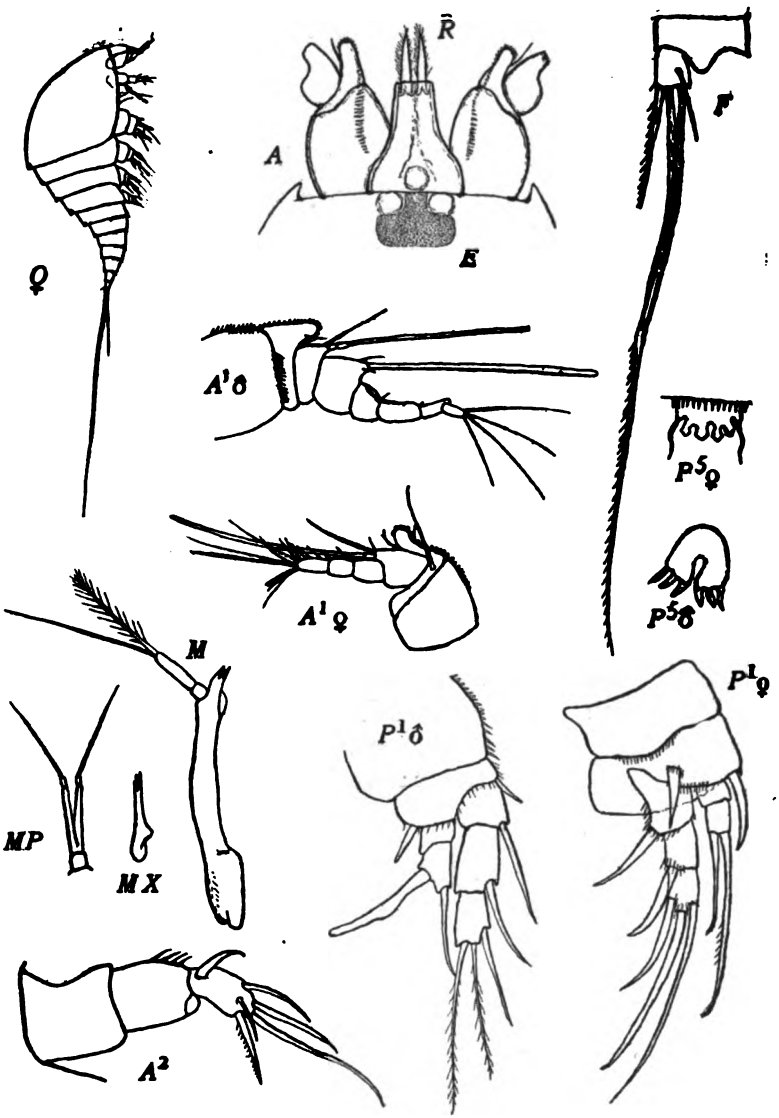

PLATE I.

Tliopsyllus Natans n. sp.

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Plate II. LICHOMOLGUS ADHERENS. n. sp.

♀	Female, x 57.
N	Nauplius, x 370.
A^1	First antenna, x 260.
A^2	Second antenna, x 260.
M	Mandible, x 260.
MX^1	First maxilla, x 260.
MX^2	Second maxilla, x 260.
MP	Maxilliped, x 260.
P^4	Fourth foot, x 260.
P^5	Fifth foot, x 260.

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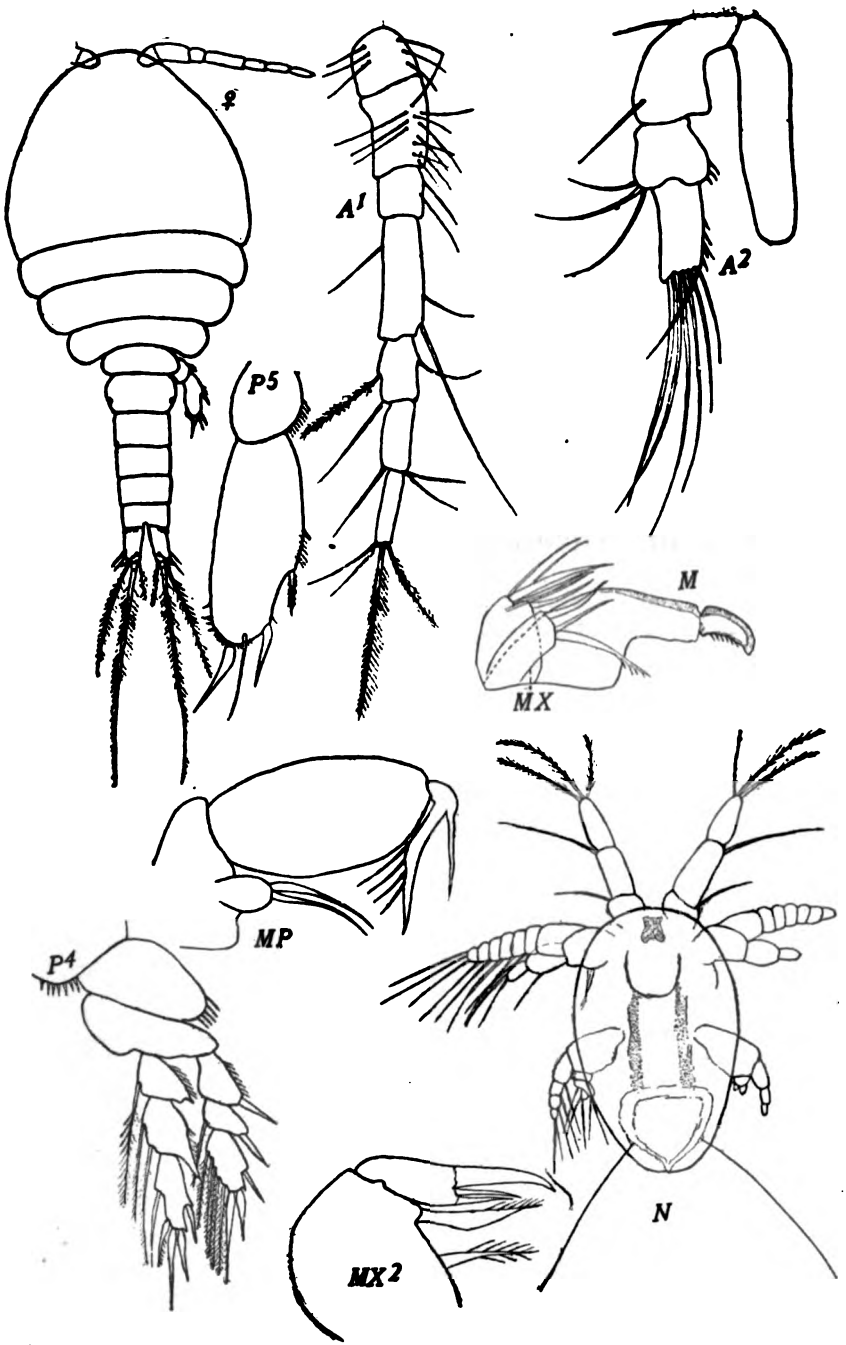

PLATE II.

Tichomolgus adherens n. sp.

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Plate III. LICHOMOLGUS MAJOR. n. sp.

♀	Female, x 44.
A^1	First antenna, x 260.
A^2	Second antenna, x 260.
M	Mandible, x 260.
MX^1	First maxilla, x 260.
MX^2	Second maxilla, x 260.
MP	Maxilliped, x 260.
P^5	Fifth foot, x 260.

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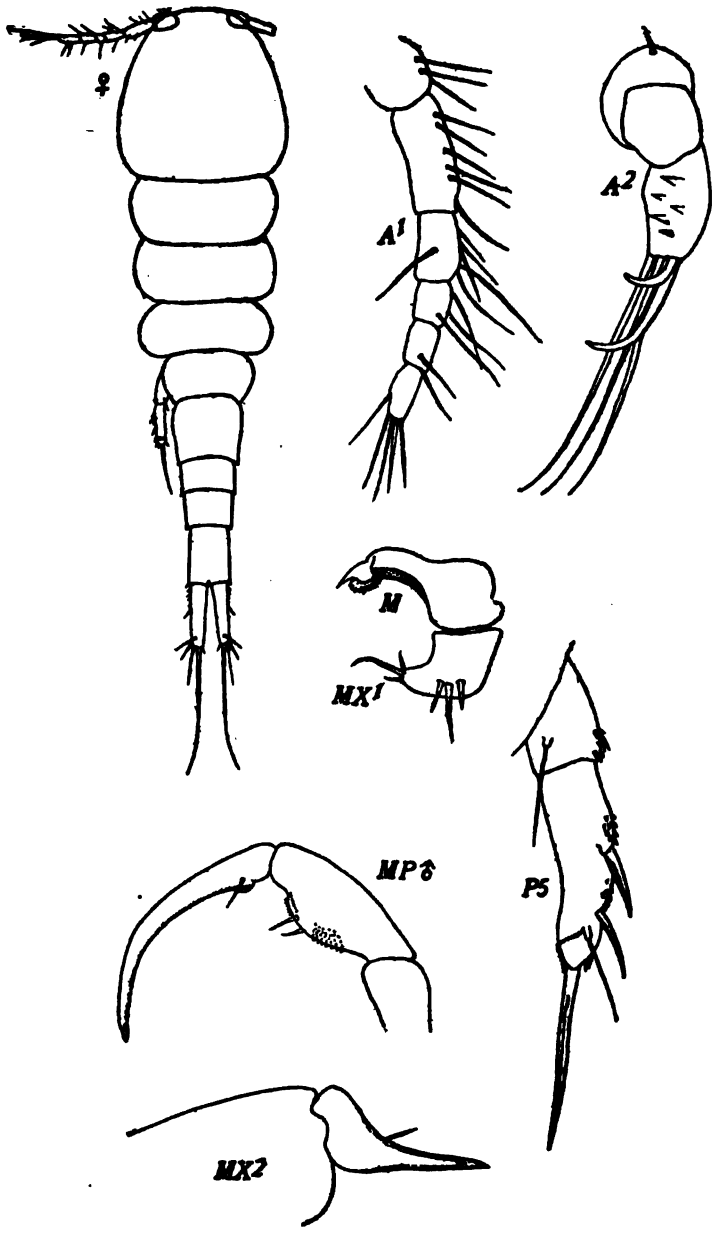

PLATE III.

Tichomolgus major n. sp.

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V. A Continuance of the Survey of the Shores of the Bay, for the Purpose of Determining those Portions Which are Most Productive of Seed Clams, and Most Suitable for the Planting of Clams and for the Distribution of Lobster Fry.

The systematic survey of the shore was continued this past year and the charts and the specimens taken were placed on file, in accordance with the plan outlined in previous reports. Dredgings and collecting were systematically carried on at the following places this past summer:

Academy Cove, Wickford; Bissel's Cove; Cold Spring Beach; Duck Cove; Little Tree Point; Plum Beach to Narragansett Pier; Poplar Point.

Many isolated spots throughout the Bay were also dredged. The remarkable abundance of clams mentioned in the last report was still observed in 1906. This abundance, which was general over the whole clam territory, came almost entirely from the set of 1904, as the 1905 set was not large. An idea of the amount of clams in certain areas may be gained from the following: A stretch of shore on the south side of Cornelius Island, not larger than seven acres at extreme low tide, has had, as in other years, an especially large supply of clams. Since May, 1905, this area has been dug over every day by at least four or five diggers, and often there has been as many as ten or twelve. Notwithstanding the fact that the clams were small and required more than the ordinary number for a bushel, these diggers in 1906 averaged two bushels per man at each tide, and some very frequently took away more than a barrel. During the season from May to October, 1906, over 3,500 bushels were taken from the bed, and there is still a good supply left.

What has been said in regard to the clam supply on Cornelius Island is true of a number of other places. In fact, the abundance of

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clams of the set of 1904 is still very general. The condition of the set of the last three years is shown in the accompanying table.

Condition of Clam Grounds Visited in August, September, and October, 1906, with Abundance of Clam Set in 1904 and 1905.

Locality.	The Abundance of Clam Set in.		
	1904.	1905.	1906.
Academy Cove, Wickford	Extremely thick	Scant	Scant.
Bullock's Point	Very good	None	Scant.
Buttonwood's Shore	Poor	.....	.....
Conanicut (west)	Good	Few	Scant.
Cold Spring Beach	Fair	Few	Scant.
Cornelius Island (S. W. Pt.)	Extremely thick	Few	Scant.
Cornelius Island (elsewhere)	Thick	None	Few.
Duck Cove	Good	Few	Few.
Fishing Cove	Good	Scattering	Few.
Greene's Island (east shore)	None	None	Good.
Kickemuit River (west bend)	Very good	Scattering	Few.
Kickemuit River (elsewhere)	Meagre	Scattering	Fair.
Mill Cove, Wickford (west shore)	Fair	Scattering	Scant.
Mill Cove, Wickford (south shore)	Very good	Few	Scant.
Mill Cove, Wickford (north shore)	Good	Few	Few.
Poplar Point	Good	Few	Few.
Prudence Island	.....	None	None.
Prudence Island (west shore)	.....	None	None.
Quonset Point to Greenwich Bay	Good	None	Few.
Sakonnet River (upper east shore)	.....	Few	Few.
Sauga Point	Good	Few	Scant.
Sheep Pen Cove	Good	Few	Few.
Vial's Creek	Good	.....	Few.
Village Cove, Wickford	Good	.....	Fair.

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VI. The Continued Investigation into the Methods of Clam Culture.

During the past year little work has been done in the way of new experiments or actual clam culture. The condition of the clamming territory, however, has given an opportunity to make many observations which, taken together with our previous experiments in clam culture have an important bearing on the question of the future development of a clam industry in Rhode Island.

The effect of digging over clam beds was mentioned in the last report. The statement that the digging over seemed to render the soil unfavorable for the establishment of a new set has had new support in the condition of the set at Greene's Island. The extensive digging attendant on a previous large set apparently prevented the Island from receiving its share of the abundant set of 1904. The old set was therefore gradually dug out, and in 1906 little digging was done on the Island. Consequently there was a good set on the Island this year, while other shores which were constantly dug over received a very meager set.

The slow growth of clams in the overstocked beds has also been noted during the past two pears. Clams which on account of age should have been three inches or more in length, are on the average barely two inches long. In places where the tide runs swiftly this retarding of growth can not be regarded as due to a lack of food, but is apparently attributable to interference with the burrowing and feeding.

When living in the water uncovered by soil, clams will grow quite rapidly for a short time and then very slowly.

Such small clams, whose thick shells indicate a considerable age, are often seen on the timbers of wharves where they are held in place by mussel threads or by their own byssus. A certain depth of soil is necessary for a favorable growth of a clam, as has been ascertained from experiments with clams grown in boxes with various depths of soil. In the overcrowded beds, however, the majority of the clams

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are either forced entirely out of the soil or are kept from reaching a proper depth, and consequently their growth is interfered with.

Whenever the clams are covered by the tide a renewed activity occurs, and the constant moving about of some in each group in their efforts to burrow disturbs the whole mass of clams. This disturbance causes the clams to draw in their siphons frequently, and thus stops their feeding. Since the growth of the clam, as of most marine animals, depends almost entirely on the amount of food that is obtained, this disturbance amounts to considerable in retarding the growth. The clams which are crowded out of the too thinly settled beds, and often die in considerable numbers, have naturally a deleterious effect upon those that remain alive.

A well-stocked bed is distinctly beneficial to the adjacent ones if it is allowed to remain undisturbed through the spawning season. The undisturbed spawning sets afloat millions of seed clams which the tide spreads over the neighboring shores. While the Commission does not take the credit, often attributed to it, of being responsible for the recent large set on account of the spawn from its reserve beds, yet it is quite noticeable that a heavier set has occurred on the shores in the immediate vicinity of these beds.

The set of 1906 was very small. Some spots, as at Greene's Island, where the soil was undisturbed, received a good set, as has been mentioned before. In the accompanying table is a list of the shores visited in 1906, with notes on the clam sets of the previous three seasons.

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VII. Efforts to Prevent the Illegal Taking of Short Lobsters.

Your commission has continued its endeavors to enforce the lobster law and thereby to protect the industry from the abuse of the ignorant, indifferent, or shortsighted persons who formerly made a practice of destroying short and egg lobsters in great quantities. During the few years of enforcement of this law the effect has, we believe, been decidedly beneficial. The dealers and the more intelligent fishermen realize, of course, that the law was drawn and its enforcement attempted for their benefit.

The constitutionality and legality of the law have been called in question in a manner and with the result which appears in the following opinion of Judge Douglas, of the Supreme Court:

SUPREME COURT.

State, v. Patrick Sheehan. } C. Q. No. 409. Ex. &c., No. 3773.

OPINION.

Douglas, C. J. This is a complaint charging the defendant with having in his possession seventy-five short lobsters, in violation of Public Laws, cap. 969.

After being found guilty in the District Court, on his plea of not guilty, the defendant appealed to the Superior Court, where the jury found him guilty of having had sixty short lobsters in his possession. Before sentence he moved to dismiss the complaint on the ground that the provisions of Cap. 969 are void, being contrary to article I, sections 10 and 14, of the constitution of Rhode Island. During the progress of the trial several exceptions were taken which are now brought to this court in a bill of exceptions.

The constitutional question and the bill of exceptions were tried together and are now before us for consideration.

The constitutional question is not stated with sufficient definiteness to enable us to ascertain what specific objection to the statute is intended to be relied upon.

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We find nothing in the sections mentioned which can be supposed to be violated by the provisions of the statute. The argument in support of this motion was addressed to the clause of the law which provides: "The possession of any such lobster, cooked or uncooked, not of the prescribed length shall be *prima facie* evidence to convict." As the offence charged in this case was having in possession, it could be no infringement of the defendant's constitutional rights to enact that proof of the fact should be *prima facie* proof of the offence. If the clause has any effect in a case like this one, it is only to emphasize the right of the defendant to introduce evidence to show that his possession was not with guilty knowledge, as he was admitted to do at the trial before the jury.

We can not see that any constitutional question properly arises in this case.

The first exception is that a witness was allowed to testify to facts which are matters of public record without producing such record.

The transcript shows that this objection was expressly waived by the defendant rather than submit to an adjournment, that the record might be produced.

The second exception is taken to the refusal of the presiding justice to dismiss the complaint on the ground that the complainant had not given surety for costs and was not an officer authorized by law to bring such complaint without giving surety.

The motion to dismiss grounded on the objection to the complainant's official status came too late. It should have been made before the defendant had pleaded in bar to the complaint. *State* v. *McCarty*, 4 R. I. 82.

The third exception is to the refusal of the court to the offer of the defendant to prove that lobsters which he had had in his possession on previous occasions were of lawful size. This evidence was obviously incompetent.

The fourth exception is to the refusal of the court to charge the jury that: "The possession of short lobsters is only *prima facie* evidence of guilt. The defendant can explain the possession and if he did not know he had short lobsters in his possession, he is not guilty." The court had already allowed the defendant to introduce evidence explaining his possession of the lobsters in question and had charged the jury to the effect that if the defendant, knowing that he had lobsters in his possession, and having full opportunity to examine them, neglected to inform himself that they were under legal size, he might be found guilty of the offence charged.

We think this instruction correctly stated the law as applicable to the case, and the request was properly refused.

The last exception was taken to the charge as a whole, and, as we have repeatedly held, can not be considered.

The exceptions are overruled, and the cause is remanded to the Superior Court for sentence.

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VIII. The Propagation of Lobster Fry for the Purpose of Increasing the Supply of Lobsters in the Waters of the State.

Your commission has devoted a great deal of energy to the continuance of this work, which has now passed the experimental stage. In our introductory remarks we mentioned the unique success of the efforts in this regard and the fact that there has been already a noticeable increase of short lobsters in the upper part of the bay, apparently due to the artificial propagation carried on at the Wickford station.

This work last year was under the immediate superintendence of Mr. E. W. Barnes, who has made valuable improvements in the methods of hatching and has offered suggestions for further improvements which we hope to test next season. Mr. Barnes's report of the season's work is herewith submitted.

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LOBSTER CULTURE AT WICKFORD, R. I. IN 1906.

BY EARNEST W. BARNES,

SUPERINTENDENT OF THE WICKFORD EXPERIMENT STATION.

The first egg lobsters were placed in the hatching crates on the morning of the 30th of May, and on the 11th of August, after a continuous run of 73 days, the season closed. The weather was exceptionally free from winds and storms, but the season's work suffered as a result of a period of fog and rain in the early part of June. The low temperature, the absence of sunshine, and the freshness of the water were unfavorable to the best results. Nevertheless, during the season 190,000 fourth-stage lobsters were counted out as against 103,000 in the preceding year, and in addition 25,000 were reared to the fifth stage. These lobsterlings were liberated in various places on the shores in Narragansett Bay.

Some of the more important features of the season's work in lobster rearing is as follows:

Rearing to the Fifth Stage.—As has been pointed out in previous reports, many unfavorable natural conditions are overcome by rearing the recently hatched lobster larvæ through the first 10 to 16 days of life, which form a critical period due chiefly to excessive cannabilism and very feeble swimming powers. In the fourth stage, which is then reached, the lobsterlings are far better able to care for themselves; for, while they are very vigorous swimmers, they are inclined to seek the bottom and to secrete themselves between pebbles and under shells and stones. The swimming habit, early in this stage, is, however, strong. This is a very unfavorable circumstance, inasmuch as the lobster's greatest safety is in hiding. In the two

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or three stages following the fourth stage the shelter-seeking instinct becomes more and more pronounced and the swimming habit is given up. It is therefore apparent that the older the lobsters when liberated, the greater will be their chance of surviving.

An attempt was made, at the close of the season in 1905, to rear some lobsters to the fifth stage. This was not entirely successful, apparently because the lobsters were reared from the very last lot of eggs and were undersized and weak. Another attempt was made during the past season with a lot of 5,000 which had come into the fourth stage on the same day. These were counted into a rearing bag and treated like the fry in the first three stages. Although a number of these escaped over the top of thebag, which was accidentally submerged for a short time, over 4,000 fifth-stage lobsterlings were counted out. Because of this encouraging result it was decided to rear the remainder of the season's output to the fifth stage. The best results obtained were 80 per cent. of the fourth-stage lobsters reared to the fifth stage, and the average percentage was 60.

Fourth and Fifth Stages Compared.—Observations made on the behavior of the lobsters in fourth and fifth stages, when they were in the confinement of the rearing bag and when they were liberated under various circumstances, revealed certain very desirable advantages which those of the later stage possess. These observations may be briefly summarized as follows:

In the confinement of the rearing bags the lobsterlings which have recently entered the fourth stage occupy an area quite near the surface and swim vigorously against the current created by the paddle (negative rheotropism). The claw-limbs are stretched out in advance and kept close together, making the lobsterlings appear like little black lines. Very few at this period cling to the sides of the bag. As they become older they swim deeper in the water, and more of them cling to the sides. When the fifth stage is reached very few of the lobsters are in sight. The rest may be found hidden among the tufts of algæ which grow upon the sides of the bag, or upon the bottom of the bag in the grooves made by the inside slats.

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When they do swim they appear to be heavier in the water and the swimming is undertaken with a definite goal in view, and the direction of their swimming is not much affected by the current. The claws, instead of being stretched out in front, as is so frequently the case in the fourth stage, are drawn back so that the tips are just in advance of the head, as in the adult lobsters.

A number of lobsters which had recently passed into the fourth and fifth stages, respectively, were liberated in deep water and also along shore in shallow water, and were observed carefully in order that their behavior at this important crisis might be compared.

When liberated in deep water the fourth-stage lobsters would often swim for a time actively at or near the surface of the water. A few going deeper into the water would come up to the surface again, When there were bits of sticks, eelgrass, etc., close at hand they would often bump into them, stop and investigate a moment, and then swim away. The fifth-stage lobsters, when liberated in deep water where there was nothing to attract attention, would soon be lost sight of in their descent. Very few would return to the surface again. Where there were objects strewn about they would either descend unattracted by them or would swim to the nearest object and attempt to crawl upon it. If the object were too small to hold them they would fall off and perhaps remount two or three times, and, failing to stay on, would seek another object.

When liberated in very shallow water along shore, the fourth-stage lobsters would swim about till attracted by something on the bottom, and would then drop down and investigate, not infrequently going down and coming up several times. Some would swim back and forth between the deeper water and the shore. It is true that many of these would establish themselves more or less permanently on the bottom, and it should further be stated that fourth-stage lobsters *which are nearing the fifth stage* anticipate the habits of that stage. The fifth-stage lobsters liberated near the shore would, almost without exception, go down to bottom at once; often crawling down a

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blade of eelgrass or other object. Very few minutes would be required for them to establish themselves in their bottom life.

The chief advantages which the fifth-stage lobsters possess over the fourth stage, aside from the fact of their being older and stronger, are as follows:

The instinct to seek shelter is stronger.

The swimming habit is almost entirely abandoned, and proportionately the instinct to crawl about is more strongly developed.

The claws are used more effectively as defensive weapons.

When liberated they seek the bottom more quickly, and for this reason there are fewer chances of being devoured by fishes.

Number of Fourth-stage Lobsters per Egg Lobster.—The method usually employed to demonstrate the economy of our rearing plant has been to get percentages from certain counted lots. From a lot of 1,000 first-stage lobsters more than 50 per cent. have been carried to the fourth stage, and over 48 per cent. from 20,000 lots. While this is a very exact method of determining the efficiency of the plant in rearing newly hatched lobsters, it does not, of course, take into account the matter of hatching the eggs themselves. During the past season we have further tested the efficiency of our apparatus by ascertaining the number of fourth-stage lobsters that may be obtained from a single egg-bearing female.

The shipment of egg lobsters from Newport closed rather abruptly the last of June. There were consequently no egg lobsters on hand when through the courtesy of the Connecticut Fish and Game Commission we received a number from Noank. These were of medium size and possessed an average number of eggs in quite good condition. From 56 of these lobsters 84,896 fourths were obtained. This makes an average of over 1,500 fourths per egg lobster. It is safe to assume that, taking everything into account, this is an average number that may be obtained under normal conditions from the method as developed at present, provided the eggs are in good condition.

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The success of the experiment emphasized the importance of especial care in the treatment of the egg lobsters. Considerable difficulty was experienced during the past year in this respect, and many of the eggs were dead before they were taken from the lobster. This was attributed in part to the unusually cold and rainy weather, which delayed development and freshened the water, and in part to inadequate provision for collecting and shipping the egg lobsters. The first difficulty can be in part corrected by the construction of deeper cars, so that the lobsters will not be kept near the surface of the water during the time when the eggs are maturing. The crates which are placed in the rearing bags to hold the ripe egg lobsters while the eggs are hatching have been remodelled for this same reason. The new crates are ten inches deep and as large as the size of the bags will allow. They are made of heavy galvanized wire about eight meshes to the inch, and provided with a solid cover to shade the lobsters from the sun.

The difficulty in getting the lobsters fresh from the pots can best be solved probably only by visiting the cars, or even the pots, with a boat containing a well. It is hoped that such a boat may be provided.

SUMMARY OF RESULTS.

This year 190,000 were reared to the fourth stage and 25,000 to the fifth stage. The previous year 103,000 were reared to the fourth stage. All lobsters reared were liberated in the waters of the bay, except a few which were used for experimental purposes. The egg lobsters were tagged and liberated when stripped. From 210 which were tagged, 36 tags were returned with the desired information.

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Liberation of Fourth and Fifth Stage Lobsters, 1906.

Locality.	Number.		Character of Shore.
	Fourth Stage.	Fifth Stage.	
East Poplar Point	10,000	.....	Rocky.
Mill Cove No. 1	2,000	1,000	Rocky.
Mill Cove No. 2	1,000	200	Muddy.
Point Judith Pond	10,000	.....	Stony, light seaweed.
Rocky Point	20,000	.....	Rocky.
Portsmouth	10,000	2,000	Stony.
Kickemuit River	20,000	5,000	Stony.
Conanicut Island	50,000	2,000	Rocky ledge.
Mill Gut, Popasquash	.....	4,500	Eelgrass.
Hope Island	10,000	8,000	Stony.
Total liberated	133,000	22,700	.....
Use for experiments, etc	6,384	2,100	.....
Used in rearing to fifth stage	50,000	.....	.....
Total counted out	189,384	24,800	.....

Total Number of Lobsters each Year Since 1900.

Year.	Fourth Stage.	Fifth Stage.
1900	3,425	.....
1901	8,974	.....
1902	27,300	.....
1903	13,500	.....
1904	50,597	.....
1905	103,572	.....
1906	189,384	24,800
Total	396,752	24,800

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Occasion is here taken to acknowledge the courtesy of the U. S. Bureau of Fisheries in sending two cans of fry from Woods Holl, and to the Connecticut Fish and Game Commissioners for the shipment of some egg lobsters late in the season when the local supply was exhausted.

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IX. The Continued Investigation of the Life History and the Habits of the Lobster in all Stages of Growth, to Furnish a Basis for Legislation and Commercial Enterprises.

It has been our custom (adopted from the U. S. Bureau of Fisheries), ever since the experiments in lobsters were begun, to liberate the old lobsters from which the eggs had been taken. Tags have been placed upon the beaks, with a number and a request that the tag be returned by the finder. In this way considerable information has been collected each year in respect to the movements of lobsters in the ocean. We submit the record of the past year in the same tabular form as in former reports.

Records of Tagged Lobsters.

Tag Number.	Liberated.		Recaptured.		Number of Days Free.	Distance Travelled.	General Direction.
	Locality.	Date.	Locality.	Date.			
3026	North of North Pt., Conanicut.	July 2	Beaver Tail Ledge.....	Aug. 6	35	10	S. W.
3057	" " " " " .	" 2	" " "	July 20	18	10	S. W.
3130	" " " " " .	" 2	" " "	Aug. 6	35	10	S. W.
3163	" " " " " .	" 2	" " "	July 13	11	10	S. W.
3176	" " " " " .	" 2	Hope Island.....	" 26	24	1	N.
3201	" " " " " .	" 2	Beaver Tail Ledge.....	" 19	19	10	S. W.
3204	" " " " " .	" 2	Whale Rock.....	Aug. 8	37	10½	S. W.
3207	" " " " " .	" 2	Hope Island.....	July 22	20	1	N.
3222	" " " " " .	" 2	Whale Rock.....	Aug. 26	55	10½	S. W.
3268	" " " " " .	" 2	" "	" 26	55	10	S. W.
3271	" " " " " .	" 2	North Point.....	July 18	16	0	.....
3282	" " " " " .	" 2	Beaver Tail Ledge.....	" 22	20	10	S. W.
3306	" " " " " .	" 2	" " "	" 17	15	10	S. W.
3382	" " " " " .	" 2	" " "	" 26	24	10	S. W.

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RECORD OF TAGGED LOBSTERS.—Concluded

Tag Number.	LIBERATED.		RECAPTURED.		Number of Days Free.	Distance Travelled.	General Direction.
	Locality.	Date.	Locality.	Date.			
3447	North of North Pt., Conanicut.	July 2	Beaver Tail Ledge.....	Aug. 23	51	0	S. W.
3456	" " " " "	" 2	Hope Island.....	July 26	24	1	N.
3508	" " " " "	" 2	" "	" 26	24	1	N.
3516	" " " " "	" 2	North Point.....	" 15	13	0	.....
3526	" " " " "	" 2	Sandy Point, Conanicut	" 26	24	1	S. W.
3632	" " " " "	" 2	Hope Island.....	" 26	24	1	N.
3636	" " " " "	" 2	" "	" 22	20	1	N.
3648	" " " " "	" 2	North Point.....	" 18	16	0	.....
3683	" " " " "	" 2	Hope Island.....	" 22	20	1	N.
3731	" " " " "	" 2	" "	" 26	24	1	N.
3776	" " " " "	" 2	Beaver Tail Ledge.....	" 20	18	10	S. W.
3784	" " " " "	" 2	Hope Island.....	" 26	24	1	N.
3807	" " " " "	" 2	Rose Island.....	" 29	7	6	S. E.
3809	" " " " "	" 2	Hope Island.....	" 22	20	1	N.
3825	" " " " "	" 2	North Point.....	" 18	16	0	.....
3855	" " " " "	" 2	Hope Island.....	" 26	24	1	N.
3858	" " " " "	" 2	" "	" 26	24	1	N.
3880	" " " " "	" 2	" "	" 22	20	1	N.
3883	" " " " "	" 2	Whale Rock.....	Aug. 26	55	10½	S. W.
3886	" " " " "	" 2	Hope Island.....	July 22	20	1	N.
3933	" " " " "	" 2	" "	" 26	24	1	N.
3956	" " " " "	" 2	Castle Hill.....	" 11	9	10	S. E.

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The solution of the difficult problem of rearing newly hatched fry to the fourth or fifth stage has been reached by first carefully investigating the habits and requirements of the lobsters in these early stages. There are several questions upon which more information is needed in perfecting the already practical methods. Among them are the questions of the natural food and that of the responses to light. The next steps in the problem of lobster culture naturally concern the later periods of growth. Your commission has already investigated several questions concerning the life history during this period. The investigation of the rate of growth in the later adolescent stages has showed some unexpected results, particularly that the rate varies extremely in different individuals. What is the cause of this? This is of course a most important question in lobster cultivation, because the differences in growth sometimes amount to 50 per cent. or 100 per cent. Success or failure in the commercial enterprise of lobster culture might easily depend upon this one factor.

Our investigations have shown the influence of at least two factors upon the rate of growth. One of these, the amount of food, might be expected to be influential, though hardly to the extent to which it is. The other, regeneration of lost limbs, influences growth to an unexpected extent, and in a manner which is less obvious but none the less real.

The following papers are submitted by members of our staff as contributions to the scientific data concerning the lobster in various stages of development.

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REGENERATED AND ABNORMAL APPENDAGES IN THE LOBSTER.

BY VICTOR E. EMMEL,

BROWN UNIVERSITY, PROVIDENCE, R. I.

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REGENERATED AND ABNORMAL APPENDAGES IN THE LOBSTER.

I.

INTRODUCTION.

Probably most fishermen can recall some instance of a lobster with abnormal claws; specimens with claws marked by peculiar spurs and split tips, or again others which may have the two great chelæ just alike, and very rarely even a lobster with two or more extra claws and limbs. These curious abnormalities have long attracted the attention of museum and curio collectors, and recently they have acquired a considerable degree of interest as phases of the general problem of developmental mechanics.

A number of early writers have described deformities in various crustaceans, but Faxon, in 1881, was one of the first to carefully review the subject and give a detailed description of deformities, especially of those found in the lobster. Bateson, in his masterly work on "Materials for the Study of Variation Treated with Especial Regard to Discontinuity in the Origin of Species," brought together all the authentic cases of abnormal structures known at his time, not only in crustaceans, but in the whole animal kingdom, classified them, and endeavored to determine the laws to which such variations might conform. Herrick ('95), in his study of the "American Lobster," devotes a chapter to "Variations in Structure," which adds materially to Bateson's data. More recently, contributions have been made by Andrews ('04), who describes "An Aberrant Limb in the Crayfish;" Zeleny ('05 a) records the "Regeneration of a Double Chelæ in the Fiddler Crab;" and Przibram ('05) has made an exhaustive study of the symmetry and asymmetry of limbs in his monograph on "Die Heterochelie bei Decapoden Crustacun."

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The importance of a careful study of abnormal structures is well emphasized by Bateson: "To collect and codify the facts of variation is, I submit, the first duty of the naturalist. This work should be undertaken if only to rid our science of that excessive burden of contradictory assumptions by which it is now oppressed. Whatever be our views of descent, variation is the common basis of them all. As the first step towards the systematic study of variation, we need a compact catalogue of the known facts, a list which shall contain, as far as possible, all cases of variation observed" (p. vi). The following data may be valuable as contributing something to such a list, and further—since some of these variations are authentic regeneration products—they may serve in determining one source of origin for such structures.

Much of the material about to be described was obtained by experiments made at the experiment station of the Rhode Island Commission of Inland Fisheries, and from the commission's collection at the State House, in charge of Secretary Morton. Mr. Cartland kindly aided me in securing drawings from his collection at Pemaquid Beach, Maine. And through the courtesy of the United States Fish Commission, we were able to obtain possession of a most rare specimen of triple chelæ. The use of the epidiascope at the anatomical laboratory of Brown University has also greatly facilitated the production of accurate drawings.*

II.

ABNORMAL APPENDAGES.

A. Explanation of Terms.

The following terms will be used in the sense indicated below:

Chelæ: The pair of appendages which carry the "great forceps" or claws.

Chelipeds: The appendages, including both the chelæ and the thoracic limbs, or walking legs.

* A method, it may be added, which is not only equally as accurate as the camera lucida, but makes it possible to draw objects of such a large size as would be practically impossible by means of the latter instrument.

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The various segments of the cheliped, as shown, for example, in Fig. 6, will be designated as follows:

Dactyl (D): The first segment, *i. e.*, counting in a disto-proximal direction.

Propodite (Pr): The second segment.

Index (I): The distal part of the propodite which opposes the dactyl and forms one jaw of the claw.

Carpopodite (C): The third segment.

Meropodite (M): The fourth segment.

Ischiopodite (Is): The fifth segment.

Basipodite (Bs): The sixth or basal segment (not shown in Fig. 6).

All these segments are united by flexible joints, with the exception of the last two segments, the basipodite and ischiopodite. The latter two segments are fused together into one immovable piece, but there is still a distinct groove marking the two segments. It is always at this groove that separation occurs when the limb is thrown off by autotomy.

B. Abnormal Chelipeds found in the Lobster.

We will first describe the abnormal structures which we have obtained from museum collections or have found on lobsters taken from the traps; leaving for a later section those abnormalities which were experimentally obtained as regeneration products.

1. *Extra Processes arising from the Normal Dactyl.*

Specimen No. 1. Fig. 1. (Left Chela).

The propodite or index (I) part of this claw appears to be normal in every respect, except that there are two scars (a, a′) along its smooth outer border; these scars may possibly have been connected with the origin of the abnormalities in the remaining part of the claw. The dentition of the index clearly shows that it belongs to the "crusher" type of chelæ. The dactyl (D) is strongly curved and twisted upward from its normal plane. Consequently when the

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claw is closed the dactyl is not in normal opposition, but crosses over the upper face of the index. It is also dentated with the crusher type of teeth.

From the smooth or morphologically dorsal border of the dactyl arises two extra spurs or processes (D'R', D'L') which practically lie in the longitudinal dorso-ventral plane of the claw. One of the borders of each of these two abnormal processes is toothed, and the spatial relations are such that the toothed margins are turned toward each other, while the opposite smooth borders are turned away from each other. The character of the dentition is such that traces of "periodic sequence" may be seen, *i. e.*, teeth are arrayed in groups (p) characterized by larger prominent teeth, with smaller teeth intercolated between them. (See Scheme of Stahr, '98.) Along these dentate margins are tufts of tactile hairs (h). With respect to dentition and the presence of tactile hairs, therefore, these two processes seem to resemble a "nipper" more than a "crusher" type of claw. The general form of the remaining part of the dactyl, together with the fact that it is dentated with the crushing teeth characteristic of the opposing index, clearly shows that D is the original or normal dactyl, and D'R', D'L', the extra or abnormal parts. I have indicated these two processes as D'R' and D'L' because, as will be shown in a later discussion, according to Bateson's principles, these two abnormal parts are to be interpreted as a complementary pair of extra right and left dactyls.

This specimen, together with No. 4, is preserved in Mr. Cartland's collection of curios at Pemaquid Beach, Maine.

Specimen No. 2. Fig. 2 (Left Chela).

The propodite or index (I) of this chela is of the normal "nipper" type. Apparently the only scar upon it is an indentation on its lower surface, (indicated by the dotted line (a) in the figure). The dactyl (D) is bent dorsally upward at an angle of about 45 degrees from its normal position; otherwise it deviates but slightly in position and moves in the normal plant of motion. The teeth are of

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the nipper type. The tip of the dactyl is broken, but it may be readily seen that its original length must have been practically of the size necessary for normal opposition with the index; this, together with its general form, marks this part of the claw as the original or normal dactyl.

The extra process D′(R′+L′) arises from the toothed border of the dactyl. It deviates slightly posteriorly or outward from the normal plane of motion for the dactyl. The two borders facing the dentate margins of the dactyl and index are both set with pointed "nipper" teeth. When the jaw is closed, however, the dentate margin of the extra process does not meet the index in a normal manner. Each toothed border of this claw is also fringed with tufts of tactile hairs.

This and specimen No. 4 are in the commission's collection of marine life. No. 2 came from Narragansett Bay off Beaver Tail, and was brought to Secretary Morton on September 5, 1906, by deputy, Mr. T. Luth.

2. *Abnormal Processes arising from the Normal Propodite.*

a. *Two Extra Dactyls and Double Extra Indexes.*

Specimen No. 3. Fig. 3 (Left Chela).

This curious specimen has been so sadly defaced and deformed that one would hardly recognize it as the cheliped of a lobster. As may be seen in the figure, the normal dactyl (D) and index (I) have been nipped off close to the joint, as the result, no doubt, of some submarine combat. The exposed ends of the stumps are covered with a dark-brown blood clot. While there are not enough characters left to determine conclusively the structure of the original parts, still, from the general slender form of the stumps and the tufts of tactile hairs (h) at the base of the dactyl, it seems evident that the original claws were of the "nipper" type of chelæ. That these two stumps represent the normal index and dactyl is inferred, not only because they are larger than the other similar structures on this

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chela, but also because their morphological surfaces are structurally continuous throughout the limb. In regard to position, the index and dactyl are thrown horizontally outward at an angle of about 45 degrees from its normal relations to the chelæ.

At the inner or morphologically dorsal side of the second segment (d) there is a broad expansion of the propodite, so that this segment appears practically double, and is almost twice its ordinary size. Upon the periphery of this extra propodite structure are set two extra segments (D′R′ and D′L′). They are practically equal in size, and each of these segments forms a true joint with the propodite. The tip of one of these extra parts (D′L′) has been broken off, and a small area (a) is also gone from its toothed border. The general form and relation of these two extra segments clearly show that they are both dactyls; the character of the dentition, together with scattered tufts of tactile hair, also brings these two dactyls under the "nipper" type of claws.

Between these two extra dactyls there projects from the propodite a small spur I′ (R+L). A closer examination of this process showed that it was slightly bifurcated at its tip; and what is still more significant, that down two of its opposite sides there is a more or less regular row of rudimentary teeth. These two rows of teeth lie in a common plane with the two dactyls; consequently, the relations are such that the toothed borders of the flexed dactyls play upon the rudimentary teeth of this process, in a manner very similar to that of a normal dactyl and index. The evidence, then, seems to justify the conclusion that this extra structure is morphologically really a double index. And, therefore, that this double index, together with the two dactyls, represents two extra claws.

In this abnormal chela, then, we have three claws. The extra pair is at about right angles with the normal claw, and the three claws also lie practically in a common plane. The significance of the fact that D and D′R′, D′R′ and D′L′, are respectively minor images of each other will be taken up later under the head of "Discussion."

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The remaining proximal segments of this chela appear practically normal, except that they are rather thick and stubby:—The third segment or carpopodite (c), especially, is unusually broad and massive. The carpopodite is also marked by a transverse groove or indentation on its dorsal surface (not shown in the drawing), which appears as if the limb had been pinched or sharply flexed upon itself at some time when the chela was in a more plastic condition.

b. *Two Extra Indices and Double Extra Dactyl.*

Specimen No, 4. Fig. 4 (Right Chela).

In this chela it is evident that the parts I and D are the normal segments of the claw. The dactyl (D) is in normal condition, except that a small part of the tip has been broken off. The propodite is also apparently normal in all parts, except the region in which the abnormal structures about to be described have arisen. The toothed borders of the index and dactyl present the dentition and tactile hairs characteristic of a true "nipper" claw.

Upon the outer border of the index is a large and prominent abnormal process, IL and IR. This abnormality takes its origin from a region rather intermediate between the morphologically posterior and ventral surfaces, but arising more directly posteriorly than ventrally. It is about half the length of the normal propodite, and at its greatest width it is much broader than the normal index. Beginning at the distal extremity of the process, and at right angles to the plane of the drawing, is a deep fissure (f), which extends some distance posteriorly and separates the tip of the process into two distinct parts. Along each side of this fissure and parallel with it is a slight ridge dentated with a row of pointed teeth. These two dentated ridges continue in a parallel direction beyond the fissure and extend almost to the proximal end of the process. On the outer side of each row of teeth are tufts of tactile hairs. It has already been implied that the fissure which separates the distal tips does not extend far down between these two dentate ridges;

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at about the third of the distance it disappears and is succeeded by a slightly convex surface which continues proximally throughout the remaining region between the dentate margins. At about the middle of this convex surface arises a large sharply-pointed spur or tooth. Finally, it is most important to note that at the extreme proximal region of the abnormal process is a short stump D′ (R+L) which projects upward from the surface, and is located at the terminous of the two rows of teeth. The form of this stump is such that its posterior surface is convex, while the anterior surface facing the rows of teeth is flattened. The top of the stump clearly shows that it is the remnant of a larger segment which has been broken off.

The facts just described lead us to the conclusion that this abnormal process is morphologically a double index; the fissure and dentate margins indicate the outlines of these extra indices, and the large spur between them is a double "lock-tooth" corresponding to the "lock-tooth" (t) on the normal index. This double "lock-tooth," together with the pointed teeth and tactile hairs on each index, places these indices under the category of "nipper claws." Moreover, the stump at the base of these indices suggests a still further morphological interpretation. For while this stump is too small to furnish positive evidence as to the character of the original structure, still its form and position strongly indicate that it is the remnant of a former double dactyl. If this inference is correct, it follows that the abnormal process of this chela is morphologically equivalent to two extra "nipper claws."

3. *Two Extra Chelæ arising from the Meropodite.*

Specimen No. 5. Fig. 5 (Right Chela).

All of the preceding abnormal chelæ were studied as dried specimens. But the next chela to be described was discovered on a live lobster taken off cape Newagen, Maine. We left chela of this lobster was a normal nipper, but on the right chela, instead of one, there were *three* distinct claws. The animal was transferred to the

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United States Lobster Hatchery at Booth- bay Harbor, Maine, where, through the kindness of Prof. F. P. Gorham and Superintendent Captain Hahn, I was given an opportunity to study the living specimen. Through the courtesy of Dr. H. M. Smith, deputy commissioner of the United States Bureau of Fisheries, the lobster was later transferred to the experiment station of the Rhode Island Commission of Inland Fisheries, at Wickford, R. I.

In our description of this extraordinary chela we will begin with proximal segment or ischiopodite (Is). This abnormally large and distorted segment does not readily lend itself to discription; in a general way, however, it may be compared to triangular prism. One of the edges of this prism will then be ventral (v), and the prismatic surface opposite this edge will correspond to the dorso-lateral face of the segment. This dorso-lateral surface of the segment is also marked by a triangular-shaped scar or indentation (a), which may possibly have been casually connected with the origin of the more distal abnormalities.

Proceeding to the meropodite, we find that the sides corresponding to our imaginary prism for the ischiopodite are no longer parallel, but diverge very rapidly. The meropodite broadens out distally and finally terminates in two forks or branches (m, m′). The groove between these forks is at a slight angle to the dorso-ventral plane of the normal limb.

The question now arises which of these two forks is to be regarded as the representative of the normal chela. This can be determined by tracing the continuity of morphological surfaces in a disto-proximal direction. An examination of the surface structure shows that fork m is morphologically continuous from the distal extremity, through the ischiopodite to the basal segment or basipodite, where it forms apparently the entire joint with the later segment. On the other hand, the remainder of this compound meropodite meets the part just described more or less of an acute angle, giving one the impression of being grafted upon it. The right fork (m) is, there-

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fore, to be regarded as the representative of the normal meropodite, while the left branch (m′) is the extra or abnormal structure.

The remaining distal segments (C, D, I) of the normal chela present the usual characters, and with the claw (D I) opening in horizontal plane. The tips of the claw are bent slightly downward; a condition which may have been caused by a cramped position of these parts while hardening after the moult. At first sight it is not so clear whether this claw is a "nipper" or "crusher;" in its general form it is rather elongated and slender, like a nipper; but on the other hand, there is an almost entire absence of tactile hairs, and the dentition is characterized by the presence of "crusher" teeth. This claw is, therefore, of the crusher type, although in some respects it may be regarded as transitional between a nipper and crusher.*

Going back now to the abnormal part of the meropodite (m′), it is clearly evident that the next distal segment or carpopodite C′(R+L), is morphologically double. It is very massive and more than twice the size of the corresponding normal segment (c); a longitudinal groove (g) divides it into two equal sections; the outer surface of each of these sections is set with a group of spines, and distally each half forms a true joint with the corresponding propodites, P′R and P′L. Each half of this segment, with its joint and spines, is, therefore, homologous with the normal carpopodite. This double character of the abnormal carpopodite can also be traced back into the meropodite.

The morphological characters of the two extra claws (R′+L′) may be indicated in a word, as these claws are almost exact mirror images of each other. In general form the dactyls and indices of each claw are almost identical; the dentition consists of large tubercle-like teeth, with double teeth set near the angle of the jaw on each index; tactile hairs are almost entirely absent. Further details are not necessary, for it is evident at a glance that these two claws are both of the "crusher" type of chelæ.

In size these two extra claws are somewhat larger than the third

* A phenomena not uncommon in the lobster, especialy in case of regenerated chelae. See Emmel '06.

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or normal claw. They do not lie in exactly parallel planes, but are inclined at a slight angle to each other and in such a way that the dactyls are nearer and the indices farther apart. Again, the common plane of motion for these two claws is at right angles to that of the normal chela. These spatial relations of the claws, together with the fact that the double extra carpopodite also lies at right angles to the corresponding normal segment, are points of considerable theoretical interest and will be discussed again later. Another point of interest is the color relations of the extreme left claw (R′). This claw in its development has become so completely reversed in its position that its *normally lower face now lies uppermost, and vice versa.* The development of the pigment layers has also been true to this reversal, so that the lower face of the claw as it now lies is much darker than its upper face.

In brief, then, *in this splendid specimen we have three chelæ in place of the normal single one. The three chelæ are morphologically distinct, even down to the last proximal segment. Consequently we have here a case of an almost complete "triplication" of this appendage.*

The lobster on which this triple chelæ was found was a male and measured about ten inches in length. After autotomously removing the abnormal chela, the lobster was transported to the experiment station at Wickford, R. I., and placed in a floating car. It was hoped that we might be able to keep the lobster alive through the winter in order to see what the next regeneration would produce. But, unfortunately, the animal died on September 13, 1906, so this interesting question remains unanswered. The cause of death is unknown, for another lobster of about equal size was brought by the writer from the Boothbay Hatchery to Wickford at the same time with the above specimen, and kept in the same floating car.*

*This lobster was a most rare bright blue colored specimen. I removed the right cheliped to see what would be the color of the next regenerated limb. By the middle of September the lobster had moulted and regenerated the chela, but it displayed the same bright blue coloration. A further note in regard to this blue lobster may be in place here. It is true that when adult lobsters are exposed to direct sunlight for a time, they frequently fade in color and assume a bluish tinge. But the present specimen, which was taken by Captain Over in Prospect Harbor, Maine, was evidently a case of a "true blue-lobster," whose color was not due to the action of sunlight, but rather to the fact that the caraface was naturally lacking in certain red pigments usually found in the shell.

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This second is at the present date (January 30, 1907) still in a healthy condition.

4. *Similar Claws on both Sides of the Body.*

Specimen No. 6. Figs. 6–9.

Besides the deformities consisting of various divisions and repetitions of a given limb, there is another category of abnormalities occasionally met with, which consists of similar chelæ developed on both sides of the body.

During the summer of 1905, among the lobsters caught in the traps near the experiment station, I found an adult specimen with two similar claws. The lobster was a male and measured 8⅛ inches in length.

Figures 6 and 7 represent the original chelæ of this lobster. The right limb (Fig. 7) is slightly larger than the left, but otherwise they are very similar in character. Both claws are rather elongated and slender in form. The joints between the dactyl and index is placed well down toward the proximal region of the propodite. Tactile hairs are in a dense fringe along the dentate margins of each jaw. The narrow pointed teeth in each jaw are included in linear series, except a stout displaced tooth about midway in dentition of each index, which forms the "lock" to the claw. These two claws, therefore, are not only similar in practically every respect, but they are also of the "nipper" type of chelæ.

The following experimental data were also obtained: Soon after the lobster was taken from the traps, an operation was performed in which both chelipeds were autotomously removed on July 14, 1905. Soon after the amputation of these limbs another pair of chelæ began to regenerate from the remaining stumps or basipodites. The following observations were made:

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	Date.	Length of Lobster.	Type of Chelæ	Length of Regenerating Chelæ.	
				Right.	Left.
Mutilation.....	July 14	217 mm.	Both "Nippers"	160 mm.*	150 mm.*
Observation....	" 28	.....	.....	pap.	pap.
"	Aug. 20	.....	.....	13 mm.	14 mm.
"	" 30	.....	.....	18 mm.	18 mm.
"	Sept. 2	.....	.....	21 mm.	21 mm.
"	" 9	.....	.....	25 mm.	25 mm.
Moulted.....	Oct. 5	227 mm.	Both "Nippers"	130 mm.	128 mm.

* Original normal chelæ.

From this data it may be seen that the lobster moulted on October 5, eighty-six days after the amputation. The chelæ, which had regenerated by this time, are shown in figures 8 and 9. Here again both appendages are not only very similiar in form, but the arrangement of the pointed cutting teeth and the presence of tactile hairs clearly show that this pair of regenerated limbs are also of the "nipper" type of chelæ.

III.

Regenerated Abnormal Chelipeds.

It will be observed that all of the abnormal appendages so far described were found either in museum collections or on lobsters taken from the traps, and consequently we have no positive data as to their origin. The next specimens about to be described were obtained during a series of experiments on regeneration made at the Experiment Station.

1. *The Regeneration of a Triple Claw on a Walking Leg.*

Specimen No. 7. Figs. 10–18.

The lobster on which this abnormal regeneration occurred was a female and measured 8 3-16 inches in length. The animal had been recently taken from the traps and placed in a floating car. It was in normal condition, and its chelæ showed the usual asymmetry, with

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a "crusher" on the left and a "nipper" on the right. On July 26, 1905, both chelipeds, together with the second and third right walking legs, were autotomously removed. Soon after the limbs began to regenerate a curious *extra bud* was observed on the regenerating second right walking leg. The data obtained for this abnormal leg is given in the following table:

	Date.	Length of Lobster.	Length of Regenerating Leg.	Remarks.
Mutilation.....	July 26	215 mm.	.....	Original leg was normal and measured 196 mm.
Observations...	Aug. 18	.....	3 mm.	.....
" ...	" 29	.....	9 mm.	Attention was attracted for the first time to a double bud. See Fig. 10.
" ...	Sept. 9	.....	19 mm.	.....
" ...	" 10	.....	21 mm.	Extra bud became injured.* See Fig. 13.
Moulted.....	" 28	227 mm.	62 mm.	.....

Fortunately, attention was attracted rather early to the extra bud growing out from the regenerating leg. It became possible, therefore, to learn something of the history of this abnormal limb, and also secure several drawings at different stages of its growth. We will describe, first, the development; and, second, the morphological characters of this regenerated leg.

a. Development.

The development of this regenerating leg, by days, was as follows:

Thirty-fifth day. Fig. 10.—It was on the thirty-fourth day after mutilation that the abnormal regeneration was observed. In the drawing made on the following day (Fig. 11) it will be seen that in addition to the usual regenerating structure there is an extra process

*This was, no doubt, caused by the limb accidentally rubbing against some obstacle as the lobster moved about in the car. The injury consisted in brushing the extra bud abruptly upward (Fig. 13) from the original position in which it was growing.

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branching off from the third segment or carpopodite (c). This abnormal bud takes its origin from the ventral surface of the carpopodite, but instead of growing upward in a normal direction it makes an abrupt bend and hangs down. At this stage of the regeneration the outlines for all the normal segments except the basal one are all clearly defined, and the groove (g) for the jaws of the claw is well developed. The extra bud at this time also showed two definite segments, 1 and 2, which apparently corresponded, respectively, to the dactyl and propodite of the normal limb.

Forty-third day. Figs. 11 and 12.—At this stage the basal segment or ischiopodite (IS) is now also becoming differentiated. Observing the abnormal bud more closely, a distinct longitudinal cleavage was found in the tip of the propodite segment (2), which divided this segment into two equal parts, I'R' and I'L'. In the extra dactyl there was only a slight indication of a similar bifurcation (g). In size, the propodite of the abnormal bud was somewhat smaller than the corresponding normal segment, the two segments measuring, respectively, 6½ mm. and 7⅓ mm. The general color of the regenerating limb is now beginning to show a darker hue. In the preceding stage it was characterized by a bright red or pinkish color, but at the present stage dark blue pigments are developing at the joints for the various segments.

Forty-eighth day. Figs. 13 and 14.—On the forty-seventh day of regeneration an accident occurred in which the abnormal bud was mechanically displaced and thrown abruptly upward, so that it assumed a position practically parallel with the distal extremity of the normal limb. This displacement was probably the result of striking against some obstacle as the lobster moved about in the car. A wound or rupture (w) was at the same time produced at the union of the extra bud with the normal limb, which was so severe that I feared the abnormal bud would eventually become completely separated from the limb and lost. But fortunately the wound healed and the abnormal structures survived through the next moult.

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On the sixty-fifth day the lobster moulted and the regenerated limb now assumed the proportions shown in figure 15.

b. Morphological Characteristics. Figs. 15–18.

Beginning with the distal extremity of the normal leg, it may be readily seen that the dactyl (D) and propodite (PR) are normal in form, have the usual distribution of hairs and serrated teeth upon the jaws formed by the dactyl and index, and the claw itself opens upward in the normal dorso-ventral plane. The third segment or carpopodite (c) is relatively very broad, and massive, with its distal region split into two unequal forks. The larger of these two forks represents the normal segment, while the smaller abnormal one (c′) shunts off from the lower surface (slightly posterior of ventral) of the carpopodite at an angle of about 45 degrees. The last two proximal segments are abnormally thick and massive. One noticeable feature in the meropodite (m) is a variation in the form of the V-shaped groove on the distal ventral surface, into which the third segment plays when in motion. Normally, this groove is single, but in the present specimen there are two grooves, as shown in figure 16, g, g′. One of these grooves (g′) is considerably larger than the other, but it is difficult to determine from the external form which one represents the normal structure. The last proximal segment (IS), aside from its relatively great size, shows two unusual markings: the one is a triangular-like scar (s), which may possibly be the result of a previous injury, although I observed nothing of the sort before the moult occurred; the other marking is a slight groove (g″) at right angles to the scar just described. This slight groove on the ischropodite, together with the double groove on the meropodite (Fig. 16, g, g′), indicate that these segments may be morphologically doubled by the proximal extension of the abnormal process on the carpopodite (c).

Turning our attention now to the abnormal branch of the carpopodite, it may be observed that it tapers rapidly distally, to relatively

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small dimensions. The irregular form at this region (Fig. 17, a) is partially the effect of the injury received during its development. Just distal to this irregular region is a rudimentary joint? (j). It is indeed rather badly deformed, but it still presents the characteristics of a joint between the carpopodite and the next distal segment. I watched the live lobster to see whether it had any ability to move this abnormal claw. Occasionally there was a display of activity in which the abnormal structure would be carried past the posterior face of the normal propodite, so that its plane of motion would be at an angle of approximately 45 degrees to the corresponding plane of motion for the normal propodite. But it was very rarely that this abnormal process was seen to function in this manner, and, indeed, this might be expected in view of the severe injuries which the musculature at its base sustained during development.

Farther distally, *i. e.*, beyond the joint just described, this abnormal structure enlarges again and finally terminates distally in three large prongs, Figure 17, I'R', I'L', and D'(R+L). Upon closes examination it becomes evident that IR and IL represent two extra indices. They diverge from each other at an angle of about 45 degrees. The dorsal border of each index is dentated with a row of serrated teeth (Fig. 18, T); the tips are capped with the usual horny points; neither prong has any indication of a joint, and their morphological continuity with the propodite is most clearly evinced by a row of hair on the ventral surface of each index (Fig. 17, h, h'): These two rows of hair begin at the distal extremity of each index, continue proximally along the ventral surfaces in two distinct linear series, and extend down almost the entire length of the abnormal propodite.

The third prong D'(R+L) is even more interesting; for while at first glance it may appear single, it is evidently morphologically a double dactyl. It takes its origin from the dorsal surface of the propodite, near the angle at the base of the two indices; and projects upwards at right angles to this pair of indices. Near the base is a constriction (Fig. 18, j) which may be interpreted as a rudimentary joint, although I was unable to observe that it was func-

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tional as such. The two lateral surfaces of this compound structure are each dentated by a row of serrated teeth (T, T). These two rows of teeth begin near the rudimentary joint and traverse the opposite lateral surfaces in a distal direction; distally they converge but do not quite meet over the flattened and slightly furrowed tip of the extremity. The tactile hairs are grouped more or less about these dentated margins. The evidence that this abnormal structure represents the double dactyl seems even more conclusive when it is perceived that if we were to split the whole structure in a dorso-ventral plane, each half, with its row of teeth, would form a dactyl for the opposing index.

According to the above interpretation, the abnormal structure on this walking leg is morphologically a double claw, composed of two extra dactyls and a compound index. That this abnormality may extend farther into the proximal segments of the normal limb has already been indicated in the preceding description of certain structural features in the meropodite and ischiopodite. In this walking leg, therefore, we have a clear case of a "triple-claw" which has arisen through a process of regeneration.

2. *Other Experiments and Observations on Abnormalities in Regenerating Limbs.*

Aside from the fact that the triple claw just described has arisen through regenerative processes, I can add nothing further in regard to the factors casually related to its origin. As a preliminary, however, to a further experimental study of this subject, it seems desirable to record here the following observations:

a. An Extra Bud on Regenerating Leg.

The first case is that of a regenerating fourth left leg. On July 27, 1903, in one of my experiments, an 8-inch male lobster was mutilated by cutting off the first pair of swimmerets. At this time the fourth left leg of this lobster was gone, but it soon began to regener-

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ate. By the time this regenerating leg had attained a length of 9 mm. (August 28), my attention was attracted to an unusual bud-like process on the regenerating limb. Figure 19, drawn three days later (August 31), shows the location of this abnormal protuberance (b) on the basal segment or ischiopodite. The general appearance of this protuberance suggested that it might be the beginning of another extra limb, similar to specimen No. 7; but this did not prove to be the case, for instead of growing larger, this abnormal bud begun to decrease in size, and by September 9 it had almost entirely degenerated and disappeared.

The lobster in which this abnormal phenomenon appeared was an 8-inch male specimen which was being used in an experiment on the regeneration of the abdominal appendages. After the extra bud just described had degenerated, I cut off the regenerating leg just above the basal segment, to see if the degenerating bud might be made to grow again; but no result was obtained, because the entire stump was finally dropped.

b. A Double Regenerating Papilla.

In another lobster two regenerating papillæ (pp. 1, pp 2) were discovered, as shown in figure 20. These two papillæ were in the stump of the second right leg from which the limb had been autotomously removed on July 26. When these two protuberances were first observed (August 18) they were about 2½ mm. in height; the inner one (pp 1) being slightly the larger. At first it was anticipated that these papillæ might develop into two limbs, but this did not occur. The growth of the outer bud became retarded and it increased but little more in size (see Fig. 21), while on the other hand, the inner bud grew at the usual rate and finally differentiated into a normal thoracic leg.

In both the above cases it seems at least a plausible suggestion that some of the regenerating cells may have been temporarily shunted off in an abnormal direction from the direct course of

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development, but were later re-absorbed by the predominating normal regenerative processes.

c. Various Methods of Mutilation and Results.

The observations just recorded suggested the possibility of getting similar results by artificial mutilation. In one experiment the tips of regenerating buds were touched with a redhot forceps. I thought it might be possible to destroy certain cells of the regenerating structure and thus produce an abnormality in these parts. Although six or more buds at different stages of divelopment were operated upon, no positive results were attained. The wound would nearly always heal over and the regenerative processes proceed again in a normal manner.

A different method of mutilation was then tried by cutting the regenerating buds at various regions. In about six cases the tips of the buds were slit with a sharp instrument; six more specimens were injured by nipping out small pieces from the fundaments of various segments; and again, in other instances, the buds were cut off at different levels. These mutilations were made upon buds at all stages of development, ranging from minute papillæ up to stages, in which the segments were clearly evident, but in no instance was an abnormal structure obtained. In all cases the result was either that the whole regenerating bud would be finally dropped at its base, or else the wound would heal and the regeneration continue. An illustration of the latter result is shown in Figure 22. This regenerating bud had been cut near the tip with a pair of fine scissors. The wound healed rapidly, and the direction of growth among the regenerating cells was such that the scar (s) was finally pushed to one side. After the moult only a slight trace of the wound was evident.

In a third experiment, mutilations were made by cutting normal limbs at various levels. In all these mutilations of this character, the limbs were either autotomously dropped after the operation, or else regeneration began at the region of injury. This experiment was

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made primarily for the purpose of comparing the power of regeneration at different levels of the appendages, but one of the results was so unusual that it may be fittingly described here. In one of the lobsters the normal second left leg, the propodite had been cut off at a level just above the second distal joint. The structure which regenerated at this cut was the very small claw shown in Figure 23. This rather remarkable structure was very rudimentary and no evidence of its being functional was observed.

With the exception of this last case the artificial mutilations thus far attempted, therefore, have not given any very promising results, but still this is no ground for discontinuing such experiments. They only show that we have not yet discovered just where we may insert an obstacle between the cogwheels, if the figure is permitted, which will cause the growing machine to duplicate its products.

3. *The Regeneration of Two Crusher Claws.*

As far as I am aware the following two specimens are the only authentic cases on record in which a lobster has developed a crushing chela on each side of the body through the process of regeneration. Accordingly, a somewhat detailed description of these specimens will be given.

a. Data.

Specimen No. 8. Figs. 24–31.

This lobster is the same animal which regenerated the triple claw on the walking leg described on page 113. It will be recalled that it had been recently taken from the trap, was a female, and measured 8 3-16 inches in length. On July 26, 1905, both chelæ and the second and third right walking legs were autotomously removed by pinching the tip of the limb with a forceps. On September 28, sixty-four days after the amputation, the lobster moulted and then measured 8½ inches. It had, meantime, regenerated both chelæ, and the second and third right thoracic legs.

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The original chelæ of this lobster were of the normal asymmetrical type. The left claw (Fig. 24) was a completely developed "crusher," characterzied by the wide massive claws with an almost entire absence of tactile hairs, and by the presence of broad tubercle-like teeth. The right chela (Fig. 25) was of a characteristic "nipping" type, with a relatively slender claw, pointed cutting teeth, and a fringe of tactile hairs along the jaws. The right and left chelæ measured, respectively, 146 and 140 mm. in length.

Soon after the amputation of these limbs another pair of chelæ began to regenerate from the remaining stump or basipodite. On July 18, twenty-three days after the amputation, the regenerating buds measured 5 mm. in length. By the time the segments of the future limbs were well outlined, attention was drawn to the very similar appearance of the two regenerating structures. Usually, as the lobster approaches the culmination of the moulting period, the regenerating chelæ become so clearly differentiated that a distinction between the "crusher" and "nipper" can often be readily detected. In the present case, however, no characteristic differences could be observed between the right and left regenerating buds, and, moreover, the general morphological appearance of each was such that it led to the prediction that both were developing into the crushing type of claws. The correctness of this prediction was shown at the next moult.

After the lobster had moulted, the regenerated chelæ resumed their normal shape and both measured 63 mm. in length. Each cheliped was very similar to the other in form, and displayed the morphological characters of a true "crusher." All the other appendages were in a normal condition except the regenerated second right leg, which had developed the triple claw previously discribed.

Specimen No. 9. Figs. 32–35.

This specimen was an 8-inch male lobster. On August 4, 1906, both chelæ and the second left leg were autotomously removed. As in the preceding case, the original chelæ were of the normal

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asymmetrical type, only in this specimen the right chela (Fig. 33) was the crusher, and the left, the nipper (Fig. 32). They both measured 162 mm. in length.

Soon after the amputation another pair of chelæ began to regenerate. By the time the segments of the future limbs were well outlined, the two regenerating chelæ in this case again looked very much alike. And the fact that their external characteristics also resembled those of a crusher, led me to anticipate that both limbs would develop chelæ of the "crusher" type. By the middle of October, 1906, the lobster had moulted and regenerated both chilipeds and the second left leg. When the chelæ had hardened and assumed their normal shape, they were practically equal in size and each measured 111 mm. in length. Both chelipeds were remarkably similar in structure and each displayed the characters of a true "crusher" claw. The second left leg had also regenerated, but it, as well as all the other appendages, were in a normal condition.

After these lobsters had moulted, the limbs were again removed and an attempt made to keep the lobsters through the winter in order to see what type of chelæ would be reproduced by the next regeneration. Unfortunately, the unnatural conditions under which it was necessary to keep lobsters during the winter resulted in the death of lobster No. 8 on January 6, 1906. But so far we have been more successful with the other specimen, and lobster No. 9 is at the present date (February 1, 1907) still in a healthy condition at the experiment station. It may yet be possible, therefore, to obtain an answer for the question as to what will be the character of the next regenerated chelæ.

b. Morphological Comparison of the Normal and Regenerated Chelæ.

Specimen No. 8. Figs. 24–31.

The morphological comparison of the normal and regenerated chelæ of the lobster may be best presented by making, first, a detailed analysis of some of the characters not clearly shown in the photo-

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graphs. For this purpose drawings (Figs. 28–31) have been made of the index or propodite part of each claw to show the characteristic dentition and distribution of tactile hairs.

The original right "nipper" index (Fig. 30) is of a characteristic normal type. Tactile hairs (h) are distributed in a dense fringe on each side of the dentated margin and along the distal outer border of the jaw. The teeth are narrow and pointed. These cutting teeth are arranged in a linear series, and in a periodic sequence with a formula of 1:4:3:4:2:4:3:4 for a perfect period (P).* All the teeth of the propodite are included in the single linear series, except a stout displaced tooth (t) about midway in the dentate margin, which forms the "lock" to the claw (Herrick, '05). Another characteristic feature in the arrangement of the teeth is that at the posterior part of the jaw the single series of teeth are shunted off toward the upper face of the propodite in the direction of the upper or outer side of (y) the joint (j) formed by the union of the two segments of the claw.

The original left claw (Fig. 29) is a typical normal "crusher." The index or propodite part of the claw, in marked contrast to the morphological characters just described for the "nipper," is characterized by the almost entire absence of tactile hairs, only a few isolated tufts (h′) remaining near the angle of the jaw. The "stout displaced tooth" of the nipper is absent. Instead of the pointed cutting teeth, the jaw is dentated with broad "crushing" tubercles (t) formed by the fusion of periodic teeth (according to Herrick, '05). A normal feature in the dentition is the double row of tubercle *teeth* (t^2) at the posterior part of the index. An equally typical feature is that these two rows of teeth do not shunt off toward one side of the joint, as in the "nipper," but are arranged along either side of the median line of the jaw.

In this lobster the propodite of the *regenerated left claw* (Fig. 28) closely resembled the original "crusher." No tactile hairs are apparent, except a few tufts (h) near the angle of the jaw. The

*According to the scheme of Stahr ('98) and Herrick ('05).

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teeth (t) are broad and tubercle-like in form; periodic sequence in arrangement is not evident, and at the posterior part of the jaw the characteristic "double-crushing" teeth have re-appeared.

The *regenerated right claw*, on the other hand, is plainly unlike the original "nipper." If we examine the propodite part of the claw (Fig. 31), it is seen that only a few tufts of tactile hairs (h) have regenerated in place of the prominent fringe on the former claw. The teeth are not like the pointed "cutters," but are of the broad tubercle form; and finally, the wide departure of the regenerated structure from the original "nipping" type, and its identity as a "crusher" is completely established by the presence of the characteristic *double toothed arrangement of the tubercles* (t'^2) at the posterior part of the jaw.

Specimen No. 9. Figs. 32–35.

The description just given for the preceding specimen applies with equal truth to the morphological characters of the chelæ for the second lobster. Only in the later case the positions of the nipper and crusher are just reversed; so that the original crusher claw (Fig. 33) is on the right, and the original nipper (Fig. 32)on the left, side of the body.

The regenerated right claw (Fig. 35) closely resembled the original crusher, while the regenerated left claw (Fig. 34),on the other hand, is plainly unlike the original nipper. In both claws no tactile hairs are apparent on either dactyls or indices, except a few tufts near the angle of the jaws; the teeth are broad and tubercle-like in form; periodic sequence in dentition is not evident; and finally, as in the preceding case, the identity of these two regenerated claws as crushers is completely established by the presence of double-crushing teeth at the posterior dentate margin of each index.

The detailed morphological analysis of the original and regenerated chelæ of both lobsters is more completely compared in the following tabulated data:

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(A)=Lobster No. 8. (B)=Lobster No. 9.

		Normal: (A.) Original left claw. Fig. 24. (B.) Original right claw. Fig. 33.	Normal: (A.) Original right claw. Fig. 25. (B.) Original left claw. Fig. 32.	Regenerated: (A.) Left claw. Fig. 26. (B.) Right claw. Fig. 35.	Regenerated: (A.) Right claw. Fig. 27. (B.) Left claw. Fig. 34.
Dactyl.	General form.	Relatively short and stubby; distinctly bent.	Relatively long and slender; nearly straight.	Relatively short and stubby; distinctly bent.	Relatively short and stubby; distinctly bent.
	Dentition.	Broad tubercle-like "crushing" teeth; occasional indications of periodic sequence.	Pointed "cutting" teeth; arranged in periodic sequence with formula 1:4:3:4:2:4:3:4.*	Broad tubercle-like "crushing" teeth; occasional indications of periodic sequence.	Broad tubercle-like "crushing" teeth; occasional indications of periodic sequence.
	Tactile hairs.	No tactile hairs, except a few tufts near angle of jaw.	Dense fringe on either side of dentate margin.	No tactile hairs, except a few tufts near angle of jaw.	No tactile hairs, except a few tufts near angle of jaw.
Propodite.	General form.	Broad and massive.	Comparatively slender and tapering toward apex.	Comparatively broad and massive.	Comparatively broad and massive.
	Dentition.	Broad tubercle-like "crushing" teeth. Double posteriorly near angle of jaw.	Pointed "cutting" teeth, arranged in a single linear series, with a stout displaced tooth near the middle of the dentate margin.‖	Broad tubercle-like "crushing" teeth. Double posteriorly near angle of jaw.	Broad tubercle-like "crushing" teeth. Double posteriorly near angle of jaw.
	Tactile hairs.	No tactile hairs, except a few tufts near angle of jaw.	Dense fringe on either side of dentate margin, and along the outer distal border of the under face.	No tactile hairs, except a few tufts near angle of jaw.	No tactile hairs, except a few tufts near angle of jaw.

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Ratio of length of dactylopodite to greatest width of propodite.	(A) $\frac{43 \text{ mm.}}{40 \text{ mm.}} = 1.1$ (B) $\frac{46 \text{ mm.}}{43 \text{ mm.}} = 1.0$ **	(A) $\frac{52 \text{ mm.}}{34 \text{ mm.}} = 1.6$ (B) $\frac{55 \text{ mm.}}{35 \text{ mm.}} = 1.3$	(A) $\frac{31 \text{ mm.}}{25 \text{ mm.}} = 1.2$ (B) $\frac{32 \text{ mm.}}{26 \text{ mm.}} = 1.2$	(A) $\frac{29 \text{ mm.}}{25 \text{ mm.}} = 1.2$ (B) $\frac{32 \text{ mm.}}{27 \text{ mm.}} = 1.2$
Ratio of length of dactylopodite to the distance on the propodite from angle of jaw to the 2d joint.	(A) $\frac{43 \text{ mm.}}{38 \text{ mm.}} = 1.1$ (B) $\frac{46 \text{ mm.}}{44 \text{ mm.}} = 1.0$	(A) $\frac{52 \text{ mm.}}{38 \text{ mm.}} = 1.4$ (B) $\frac{55 \text{ mm.}}{42 \text{ mm.}} = 1.3$	(A) $\frac{31 \text{ mm.}}{26 \text{ mm.}} = 1.2$ (B) $\frac{32 \text{ mm.}}{26 \text{ mm.}} = 1.1$	(A) $\frac{29 \text{ mm.}}{26 \text{ mm.}} = 1.1$ (B) $\frac{32 \text{ mm.}}{30 \text{ mm.}} = 1.1$
Dominant characters in each claw	"Crusher."	"Nipper."	"Crusher."	"Crusher."

*Compare schema of Stahr ('98) and Herrick ('05).

†Third spine slightly below the direct line of the others.

‡Posterior spine is double, and the third is below the direct line of the others.

§Posterior spine double; second one is below direct line.

||In specimen B, the tactile hairs have been greatly worn off.

**In specimen B, the measurement for the dactyl was taken from the tip of the index because the tip of the dactyl was gone.

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C. Resumé.

a. The normally asymmetrical chelæ of two adult lobsters were autotomously removed. The right claw of lobster No. 8 was a "nipper," and the left a "crusher;" in lobster No. 9, left was the nipper, and the right a crusher.

b. After amputation the chelæ of both lobsters regenerated, but the regenerative processes did not reproduce the original asymmetrical types of chelæ. The regenerated left claw of No. 8 and the regenerated right claw of No. 9 were both true "crushers" like the original claws; but the regenerated right claw of No. 8 and the left of No. 9 had the general characters, not of the original "nipper," but of a typical "crusher."

c. A close analysis of the structural features of the latter two regenerated claws demonstrated that, in *all* their morphological characters, they respectively, corresponded point for point, with both the normal and the regenerated crushers of the opposite sides, in respect to the general form, size, and proportions, in the shape and arrangement of the teeth, and even in the number and distribution of the tufts of tactile hairs.

The regenerated claws of these two lobsters are, therefore, symmetrical in form, and in both specimens they are of the "crushing" type of chelæ.

IV.

DISCUSSION.

1. *Frequency of Occurrence of these Various Types of Abnormalities.* *Specimens Nos.* 1 *and* 2. (Figs. 1 and 2.)

Cases of extra processes arising from the dactyl are the most common of crustacean deformities. For the lobster, Faxon describes at least three cases similar to specimen No. 1, with two extra processes upon the smooth border of the dactyl, (Faxon, Plate I, Figs. 1, 2, and 8). He further states that "there are several speci-

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mens similar to this in the collection of the Peabody Academy of Science, Salem, and two or three in the collection of the Boston Society of Natural History" (p. 258). Herrick (Fig. 191) describes another similar instance, and Bateson, in figure 186, No. 1, shows an abnormality almost exactly parallel to our specimen No. 1.

There does not, however, seem to be a record of an extra process on the *toothed* border of the dactyl as in specimen No. 2. The nearest approach to it is that of Faxon (Plate I, Fig. 9), which has a double-toothed process on the toothed border of the index, instead of upon the dactyl.

Specimen No. 3. (Fig. 3.)

There seems to be no authentic record of a lobster claw similar to this one. Faxon does, indeed, cite the case of two chelæ on one of the legs of a lobster (Plate II, Fig. 2), which Bateson was inclined to regard as a case of a chela with an extra pair of dactyls and indices. Faxon states: "This leg is provided with two chelæ. One of them has the ordinary form and structure, but is bent at a strong angle with the long axis of the leg. The second claw appears to have budded off from an amputated surface of the propodite. It consists of two fingers, which have the form of the normal dactylus and index but neither is articulated with the other at the base" (p. 261). Bateson (p. 530) interpreted Faxon's extra "dactylus and index" as a "complementary pair of extra dactyls," and he thought it was possible to bring this abnormal claw into the category of "two extra dactyls and a double extra index" by interpreting a certain protuberance shown in Faxon's figure, as a double extra index. But it seems that Bateson was here lead into an error, as the result of inaccurate drawing; for Andrews ('05), referring to this same specimen, states that he has been informed by Faxon that "the artist unfortunately represented a protuberance which does not exist" (p. 82). Consequently, this case of Faxon's must be excluded from "the category of claws with two extra dactyls and a double extra index."

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It should be added, however, that while the present abnormal claw is apparently the first case of this kind recorded for the lobster, a few cases of somewhat similar deformities have been found among other crustacea (see Bateson, 528–530).

Specimen No. 4. (Fig. 4.)

It will be recalled that this specimen was described as a normal claw with two extra indices and an extra double dactyl arising from the normal index. This form of abnormality is very rare. Bateson describes a number of cases among crabs and lobsters in which two extra indices alone arise from the normal index, but there seems to be no record of two extra indices plus a double extra dactyl.

Specimen No. 5. (Fig. 5.)

This is a most remarkable case of the "triplication" of chelæ. Apparently the only recorded specimen which approaches it is the right chela of a lobster described by Faxon (Plate II, Fig. 6). In Faxon's specimen the meropodite divides distally into two parts, each bearing an articulated appendage. One of these two branches is a normal chela, but the morphological character of the abnormal branch remains a question. The carpopodite of this latter structure is not normal in form, "but is slenderer, subcylindrical, and much more spiny." It "bears at its distal extremity an abortive propodus in the shape of a small stump-like segment, bifurcated at the end and armed with a blunt spinous tubercle on its inner margin" (p. 263). Interpretations of this abnormal and rudimentary structure differ; Bateson is inclined to consider it as "morphologically a double structure" (p. 536), and, consequently, that the whole limb may be a triple chela. But Faxon does not regard this extra structure as double, and thinks that in this specimen we have an approach to a duplication, rather than a triplication, of chelæ.

At any rate, in our present specimen there can be no question as to its triple character, at least as far down as the meropodite if not

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farther. And this case is evidently the nearest approach to a true triplication of the chela yet discovered in the lobster.

Specimen No. 6. (Figs. 6–9.)

Normally in the adult lobster the "great claws" are almost invariably asymmetrical with reference to each other—the claw on one side being a "crusher" and the other a "nipper." The crusher claw seems to occur about as frequently on one side of the body as the other,* but it is only very rarely that we find an adult lobster with both chelæ alike. In examining over 2,400 lobsters Herrick ('96) found only 3 which had similar claws on each side of the body (p. 143); and in a personal examination of over 600 specimens as they came from the traps at the experiment station, I found only one lobster with both claws alike. This specimen, therefore, makes the fourth lobster out of 3,000 which has been found with both claws alike. It is important, moreover, to note here that these four cases were *all of the "nipper" type of chelæ.*

Specimen No. 7. (Figs. 10–18.)

This case of a triple claw is especially unusual because it occurs upon a walking leg. The fact that such abnormalities are very seldom found on a walking leg has been pointed out by Andrews ('04) in his statement that: "Of the thirty cases of abnormal appendages quoted by Bateson, two are of the antennæ, four are of non-chelate legs, and all the rest of chelæ except one, which is a chelate walking leg . . . . . and of the eleven additional cases given by Herrick, only two are of the walking legs" (p. 81).

Incomparing the present specimen with other described cases in

*It is an interesting question whether this right and left "handedness" of the lobster is inherited and congenital, or whether it may be determined during development and by other factors. I hope later to give the results of some experiments now almost completed, in which I have tried to throw the crusher to either side of the body by making appropriate mutilations during the larval stages; *i. e.*, at a stage before the claws have differentiated into crusher or nipper. For a further discussion of this subject see an article in *Sciences* (Emmel, '07), in which it is shown that the results so far attained in these experiments establish a strong presumption that the right or left handed asymmetry of the lobster may be determined by other than hereditary factors.

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crustacea, I was unable to find that either Bateson, Faxon, or Herrick record an instance of a double extra claw arising from the third segment or carpopodite. The only case at all similar to it is that of a crayfish, *Astacus fluviatalis;* this most "unique" specimen differed, however, from the present case, in that, instead of *two* there were three extra chelæ which arose from the carpopodite. (See Bateson, No. 827.)

Specimens Nos. 8 *and* 9. (Fig. 24–35.)

The fact that in the four specimens out of over 3,000 lobsters which were found with similar chelæ (see specimen No. 4) the claws were all of the nipper type emphasizes the point that it is extremely rare to meet with a lobster with two "crusher" claws. Indeed it has been a matter of considerable doubt whether or not a lobster is ever found with a crushing claw on each of the two "great chelæ;" for in the adult lobster the "great" claws are almost invariably asymmetrical with reference to each other—the claw on one side being "nipper" and the other a "crusher." On the other hand, in the young lobster (*i. e.*, in the fourth, fifth, and sixth stages) the two claws are alike and similar to the nipping type; and the fact that in the rare instances in which symmetrical claws have been found in adult lobsters both were always of the "nipping" or embryonic type has created a strong presumption that a "crushing" claw would not be developed on each chela of this crustacean.

Until a year ago the only case recorded of two crusher chelæ on the lobster was in a footnote to Herrick's ('96) description of variations in the form of lobster chelæ: "I have heard of a single case reported by a fisherman, where similiar crushing claws were developed on both sides of the body" (p. 143). To Przibram, writing in 1901, this seemed such an incredible phenomenon that, in view of the theoretical reasons indicated in the preceding paragraph, he concluded that: "Der eine Fall von einer Hautung beiderseitigen" crushing-claw, von dem Herrick nur vom Hörensagen durch Fischer

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Kenntni's erheilt, wird wohl in der Reich der Fischermythen zu verweisen sein" (p. 333).*

Apparently it was not until the year 1906 that any authentic account was given of a lobster with two crushing chelæ. During this year two such lobsters were recorded; one of these was specimen No. 8 of the present article, which was obtained in 1905 (see Emmel, '06); the other was reported for a European lobster by Dr. W. T. Colman, in the Proceedings of the Zoölogical Society of London for 1906. On page 633 of that journal is "exhibited the photograph of a lobster (*Homarus grammarus*, Linn.) with symmetrically developed chelæ [*i. e.*, two crushers], recently presented to the Natural History Museum by the Directors of Harrod's Stores, Ltd." (p. 634). Finally, lobster No. 9 of this report adds a third specimen to the list. We have now on record, therefore, at least three authentic cases of lobsters with similar crushing claws.

2. *The Theoretical Significance of these Abnormal Structures.*

A. Limbs with Paired Extra Processes.

1. *Bateson's Principles for Secondary Symmetry.*

Bateson, in his masterly work on variation, has been able to formulate certain relations or principles to which a great majority of variations seem to conform. These relations are all the more striking because they enable one even to predict with a considerable degree of accuracy what certain characteristics of a given abnormality will be! A brief statement of certain of these principles which refer especially to crustacea seems necessary here before discussing the theoretical aspect of the present cases.

There are at least three possible categories for crustacean limbs

*I must hasten to add here, however, that this opinion of Prsibram's in regard to the mythological character of Herrick's lobster does not represent his later conclusion. In a previous article I (Emmel, '06) unfortunately overlooked Prsibram's latest conclusion on this matter in his recent work on "Die Heterochelie bei decapoden Crustaceen," 1905. And, in a recent letter, he has kindly called my attention to the fact that in this monograph he has withdrawn his earlier opinion as to the mythological character of said lobster. I therefore gladly take this first opportunity to correct my previous oversight.

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with abnormal extra processes. The first of these categories would include all those cases in which two limbs or parts of limbs are identical copies of the normal appendage for which they stand, and consequently belong to the same side of the body, or, in Bateson's terminology, are in "succession." The second category would include all cases in which two limbs or parts of limbs are mirror images of each other; *i. e.*, they represent a complementary pair of right and left appendages.

In regard to the first category, no authentic case is known which conforms to it. In every case so far recorded "no right arm is ever succeeded on the same side of the body by another arm properly formed as right and no crustacean has two right legs in succession, where one should be" (Bateson, 529). Bateson records nine cases of crustacean limbs apparently double in the sense of the second category; and Zeleny ('05) has carefully described the "regeneration of a double chela in the fiddler crab." But Bateson hesitates to admit the existence of such double structures, and that there should be such a thing as a double limb (in the sense of this second category) "has always," he remarks, "seemed to me most strange;" he thinks it possible rather that one of the members of such a pair may generally be regarded as itself really double. Bateson, therefore, was able to exclude nearly all cases of so-called double limbs from these two categories, and established the important point that the great majority of abnormal crustacean limbs—including most cases of apparent double appendages—can be brought under a *third* category of variations; a category, namely, in which the extra limb or extra parts of a limb are themselves morphologically double.

In the course of the following discussion it will become evident that all of the cases of extra processes described in this paper may be brought under this third category.

A closer study of this class of abnormal structures brings us to a discussion of certain characteristic principles. It has been discovered that there is a remarkable degree of regularity in the morphological and spatial relations, not only between the two members of

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the extra pair of limbs, but also between this pair and the normal appendage. Bateson has formulated these relations under certain principles of secondary symmetry, which he expressed in the following two rules:

I. "The long axis of the normal appendage and of the two extra appendages are in one plane; of the two extra appendages one is, therefore, nearer to the axis of the normal appendage, and the other is remoter from it."

II. "The nearer of the two extra appendages is in structure and position formed as the image of the normal appendage in a plane mirror placed between the normal appendage and the nearer one, at right angles to the plane of the three axes; and the remoter appendage is the image of the nearer in a plane mirror similiarly placed between the two extra appendages."

"Transverse sections of the three appendages taken at homologous points are thus images of each other in parallel mirrors" (p. 479).

In the lobster, therefore, according to these rules, in any case of two extra legs or claws, these two *extra* parts will be a complementary pair, one member of which will belong to the right and the other to the left side of the body. Furthermore, the member of the pair which is nearest the normal limb will always be the one corresponding to the other side of the body.

Let us now see how the specimens with extra processes described in the present paper will conform to these principles. With regard to the universal character of these rules, Bateson observes that "It would not be true to assert that these rules are followed with mathematical precision, but in the main they hold good" (p. 482). And it is remarkable to what extent these rules hold for the present specimens; for it will be seen that the characteristic relations which might have been predicted on the basis of Bateson's principles are actually found in almost every case.

For our present purpose these specimens arrange themselves conveniently under two groups:

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a. Extra process repeating but one segment, *i. e.*, the distal segment or dactyl.

b. Extra processes repeating more than one segment.

2. *Extra Processes Repeating but One Segment, i e., the Distal Segment or Dactyl.*

Specimens Nos. 1 *and* 2.

Bateson's rules for secondary symmetry will apply to extra processes arising from any morphological surface of the normal limb; *i. e.*, arising from the morphologically ventral, dorsal, anterior, and posterior surfaces, or from an intermediate position. Accordingly, given the morphological surface origin of the extra processes, we can state theoretically what the spatial relations will be. Now for specimens Nos. 1 and 2, the abnormal structures in the former arises from the smooth or morphologically *dorsal* surface of the dactyl, and in the latter the origin is from the toothed or *ventral* border of the same segment. The following diagram has been drawn to show what the relations for these two positions should theoretically be for the right dactyl of a lobster claw.

In the figure at the left of this diagram, Fig. I represents a cross section of a dactyl taken through the dorso-ventral plane. Figs. II and III each represent cross sections for a pair of extra processes arising, respectively, from the dorsal and ventral surfaces of a normal dactyl; the section in each case is in the dorso-ventral plane and through points homologous to those of the normal section in Fig. I. In each of these sections the pointed portion represents the toothed or ventral border, and opposite oval portion represent the dorsal or smooth border of the dactyl; the light and shaded areas, respectively, indicate the anterior and posterior sides of the segment. It will be observed that these sections have been placed in the relations demanded by Bateson's rules; for in each pair of extra parts (Figs. II and III) "the nearer of the two extra appendages" (D'L') is the mirror image of the normal appendage (DR), and " the remoter

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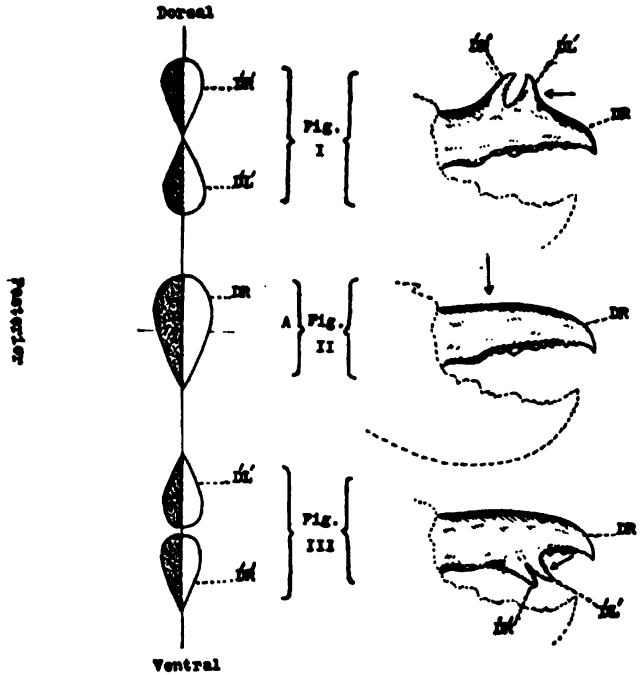
Diagram A.



DR.—Normal right dactyl.
D'R'.—Extra right dactyl.
D'L'.—Extra left dactyl.
A.—Anterior.
The arrow (——≫) indicates the plane of section shown in the corresponding figure at the left in the diagram.

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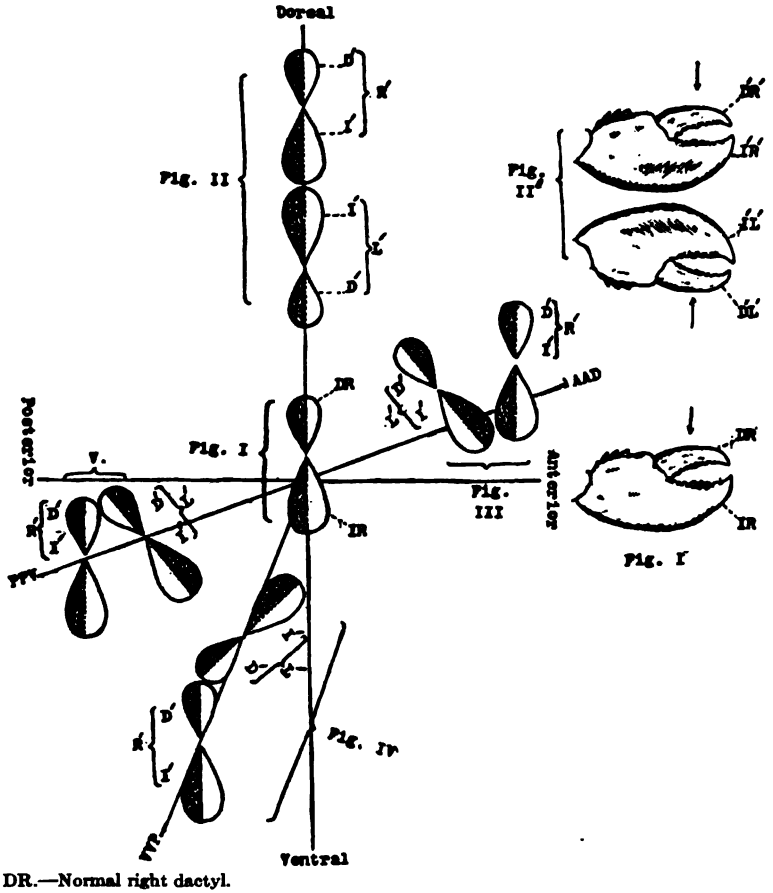
Diagram B.



DR.—Normal right dactyl.
IR.—Normal left index.
D'R' and D'L'., respectively, represent the extra right and left dactyls.
I'R' and I'L'., respectively, represent the extra right and left indices.
The arrow (———>) indicates the plane of section shown in the corresponding figure at the left in the diagram.

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appendage" (D'R') is the mirror "image of the nearer" one (D'L').

The claws sketched at the right of the diagram may make clearer the significance of these relations. The arrow in each figure indicates the plane of section shown in the corresponding figures at the left.

One of the important points in this diagram is that a definite morphological relation distinguishes the dorsal (Fig. II) and ventral positions (Fig. III) from each other. Namely, that when a pair of extra processes arise on the dorsal or smooth border of the dactyl, they turn their *toothed* or ventral borders toward each other (Fig. II); but on the other hand, when the abnormal processes occur on the ventral or toothed surface of the dactyl, they turn their *smooth* borders toward each other (Fig. III).

We may now compare our actual specimens with the theoretical relations just described. In specimen No. 1 the abnormal pair of process arise from the dorsal surface, and consequently their relations should correspond to those given for the dorsal position in the diagram. A glance at the specimen quickly shows that such is actually the case; the toothed borders oppose each other; the two extra processes are mirror images of each other, and the one nearer the normal dactyl is also the mirror image of this segment; and, finally, it is readily seen that the process nearer the normal segment may be interpreted as an extra left dactyl (D'L') and the other process as an extra right dactyl (D'R'), and consequently that these two abnormal structures evidently morphologically represent an extra and complementary pair of dactyls. In specimen No. 2 the abnormal part arises on the toothed border of the dactyl, and the relations should correspond to those shown for the ventral position in Fig. II of the diagram. In this case the abnormal part is not spatially separated into two distinct processes, nor is there even a slight bifurcation at the tip to indicate that it is a double structure. On the other hand, however, this abnormal process is itself symmetrical in form, and, accepting Bateson's interpretation that "whenever an extra part is itself symmetrical it always may be a double structure," we may

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regard this process as consisting of two fused extra dactyls. Interpreted in this way, it will be seen that we might split this abnormal part in such a way that we would have two extra processes which could be shown to conform to all the criteria in regard to mirror images, relation of the toothed borders, etc., as in the preceding case.

Specimens 1 and 2 may, therefore, be regarded as conforming with Bateson's principles for secondary symmetry. And, indeed, the above somewhat elaborate demonstration of this fact would hardly be necessary were it not that it finds its justification as an introduction to the following more complicated cases.

3. *Extra Processes Repeating more than One Segment.*

This group includes specimens Nos. 3, 4, 5, and 7. The extra segments for each of these four segments arise from the following morphological surfaces of the appendage; No. 3, from the dorsal surface; No. 4, somewhat ventral to the posterior surface; No. 5 slightly dorsal from the direct anterior face: and, finally, in specimen No. 7, the abnormal structure arises slightly posterior from the ventral surface. The comparison of the actual spatial relations among the elements of these abnormal limbs, with the relations theoretically demanded by Bateson's principles, will be facilitated by the following diagram. (Diagram B.)

The figures I–V in this diagram represent cross sections of the normal and extra claws taken through homologous points on the dactyls and indices. In each case the smaller section represents the dactyl, and the larger one, the index. As in the preceding diagram, the pointed portion of each cross section indicates the toothed margins of each jaw, and the light and dark areas, respectively, indicate the anterior and posterior surfaces. Fig. I shows a section through the normal dactyl and index of the right chela; the sections in figures II–V represent the extra pair of claws for the specimens about to be described, and show the theoretical relations of these claws corresponding to the surface origin given for each specimen.

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Figures I′ and II′ at the right, represent, respectively, a normal claw and a pair of extra claws for the purpose of illustrating the significance of the relations shown in Figs. I and II. The extra pair of claws (Fig. II′) arise from the dorsal surface of the appendage, and the arrow in each case indicates the plane of section shown in the corresponding diagrams. By means of this illustration the relations indicated by the cross sections in the remaining figures may be readily perceived.

Specimen No. 3. (Dorsal origin of abnormal structure. See Diagram, Fig. II.)

A glance at the drawing for this specimen is sufficient to show that the two extra dactyls and the double extra index conform almost exactly with the theoretical relations for the dorsal position; the three pairs of claws lie in the same plane; the extra dactyls and double index are minor images of each other, and the extra dactyl nearer the normal dactyl is also a minor image of the latter. While comparing this specimen with the diagram it will be kept in mind, of course, that the present specimen is a *left* chela.

Specimen No. 4. (See diagram, Fig. V, position PPV.)

In this specimen the abnormal parts arise from a position slightly ventral of the posterior surface. Here again the actual relations between the normal and abnormal claws correspond to the theoretical schema. The morphologically anterior surfaces are in opposition; but they are inclined at such an angle that the toothed margins are turned toward each other, while the ventral or smooth borders of each claw are thrown apart. It may also be observed that here, again, the extra index nearer the normal index is a mirror image of the latter and belongs to the right or opposite side of the body.

Specimen No. 5. (Origin slightly dorsal of the anterior surface. See diagram, Fig. III, position AAD.)

This specimen presents certain peculiar exceptions to Bateson's

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principles, but we will first observe the points in which there is agreement. The pair of extra chelæ are mirror images of each other, and the chela nearest the normal claw is also the mirror image of the latter and belongs to the opposite side of the body, *i. e.*, it is a left chela.

So far the relations seem to conform to the principles of secondary symmetry, but a closer examination reveals a wide variation. The extra pair of chela arise somewhat dorsally of the morphologically anterior surface, and this places in it the position AAD of our diagram. Theoretically, therefore, the extra claws should have their posterior faces opposing each other (the dark sides in the diagramatic sections); the claws should be inclined at such an angle to each other that the indices should be brought toward each other and the dactyls thrown apart; and, furthermore, the anterior faces of the normal claw and of the member of the extra pair lying nearest it, should also be in opposition (see diagram). But upon examining the actual specimen, we find these relation to be just the reverse from the theoretical requirements; for instead of the posterior it is the *anterior* faces of the extra pair which are opposed; in place of the indices, it is the *dactyls* which are thrown toward each other; and, finally, it is the *posterior*, and not the anterior faces of the normal claw and the nearer abnormal chela, which are in opposition.

At first I was at a loss as to how to account for this apparent contradiction. But finally the idea suggested itself that this whole difficulty could be explained by taking into account the process of "torsion" which takes place during the development of the "great chelæ" of the lobster. It is a well-known fact that, both in the ontogeny (Herrick, '05) and in the regeneration (Emmel '06) of the chelipeds, "The terminal segments gradually rotate over and inward," so that a torsion of about 90 degrees is produced and the claw now opens inward on the naturally characteristic horizontal plane" (Emmel, '06, p. 613). This means, therefore, that in our present specimen the upper surface of the normal claw as shown in the drawing should be its morphologically posterior surface, and such is actually the case. But now, curiously enough, it seems that each

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member of the pair of extra claws have in turn also *rotated another 90 degrees* during this development; and each of the extra claws has thus come to assume a position practically at right angles to the normal chela. In a word, we have the remarkable conditions here that, while the normal has rotated in the usual manner through an angle of 90 degrees, each of the extra chelæ, or the other hand, has gone through a torsion of 180 degrees.

Now if we were to turn these three chela backwards again to the position they originally held at the beginning of developmental torsion, it is surprising how closely their relations will then in every respect conform to our principles for secondary symmetry; for, if in the case of the two extra chela, both claws are rotated 180 degrees on their long axis, the claw nearer the normal chela being turned contra-clockwise and the other claw clock-wise, it will be seen that their *anterior* faces will then be opposed, and the *indices* in place of the dactyls will be thrown toward each other. Finally, if in a similar manner we rotate the normal chela clock-wise 90 degrees, it is evident that instead of the posterior, the morphologically *anterior* faces of the normal and the nearer extra claws will now be in opposition. By thus taking into account the developmental history of the lobster cheliped, it seems clear, therefore, that the morphological relations between the members of this triple chela do not fundamentally contradict, but rather furnish a remarkable confirmation of the principles of secondary symmetry as formulated by Bateson.

This factor of "torsion" does not seem to have been considered in previous discussions of crustacean deformities, but it may possibly serve to clear up other exceptional cases. A case in point is the right cheliped of a lobster described by Faxon (Plate II, Fig. 6) and Bateson (No. 826). With reference to this specimen Faxon states that, "curiously, the supernumerary carpus is set upon the meros in a position almost the reverse of that of the normal carpus. . . . It is as if the normal carpus were rotated upon the meros nearly 180 degrees to the left. . . . . .This distortion seems to me very singular, and I think nothing like it has been observed among

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insects" (p. 263). Bateson placed this specimen under his list of "exceptional cases" and offers no explanation for the unusual conditions pointed out by Faxon. It seems clear, however, that the relations which Faxon regarded as very singular in this case may be adequately accounted for as the result of the torsion of the normal and abnormal chelæ during their development.*

Specimen No. 7. (See diagram, Fig. IV, position VVP.)

In this specimen the extra parts appear to arise slightly posterior to the ventral surface of the leg. It will be seen in the diagram for this position that the two extra claws should be inclined to each other at an obtuse angle of at least 150 degrees. But in specimen No. 7 there is a great variation from this; for instead of 150 degrees, the two extra claws are inclined to each other at an angle of not more than 45 degrees,—a relation which corresponds to a more posterior point of origin (see diagram, Fig. V, position PPV). Furthermore, the relation between the minor images also correspond to a point of surface origin farther posterior than is apparently actually the case. While this specimen, therefore, seems to furnish a variation from the above principles, is should, however, be taken into consideration that a severe injury was sustained by these extra claws during their regeneration and that, consequently, this variation in relations may be largely due to an interrupted development in which the two claws were inhibited from diverging in their angular relations as widely as they might otherwise have done.

On the whole, then, we may conclude the discussion of these six cases of abnormal appendages with the observation that with a few minor exceptions these six specimens conform to a remarkable degree with what might have been theoretically predicted, and that they

*Since writing the above paragraph I have re-examined Bateson's work and find that he has suggested explaining certain irregularities among vertebrate limbs in something of a similar manner. He observes that in the case of double limbs among vertebrates, "there is generally a relation of images between the extra pair," but "a definite geometrical relation between them and the normal limb is seen more rarely." And he suggests "that this may be in part at least attributed to the normal twisting of the vertebrate limb, especially of the hind limb, from its original position" (p. 556).

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consequently furnish an additional confirmation of the principles of secondary symmetry as formulated by Bateson.

B. Symmetrical Chelæ.

Specimens Nos. 6, 8, *and* 9.

It seems difficult at present to bring the regeneration of two "crusher" claws in the lobster under any definite principles of regulation or developmental mechanics.

The phenomenon of two similar "nipper" chelæ, indeed, does not seem so remarkable, especially when we take into account the larval development. The adult lobster normally has two distinct types of claws; the more primitive toothed or "nipping" claw, and the larger and phylogenetically younger (according to Stahr, '98, and Przibram, '01) "crushing" claw. But in the larval stages, on the contrary, both are similar and of the nipper type. At about the sixth stage (Hadley, '05) one of these claws begins to differentiate into a "crusher." During ensuing moults this claw passes through transitional stages and is finally completely transformed into a crusher claw. It seems very plausible, therefore, that the presence of two similar "nipping" chelæ in an adult lobster, as in specimen No. 6, may be accounted for as due to a retarded differentiation during normal development.

Furthermore, the writer has found in several experiments that when the crushing claw has been autotomously removed, the regenerated "crusher" is not always distinguishable as such, but may rather present characteristics intermediate or transitional between the more primitive nipping and the more highly developed crushing type (Emmel, '06). If the crusher claw is phylogenetically the younger type, this might, perhaps, be expected, for then this variation in the regenerating structure may be regarded as a reversion to the phylogenetically older or nipping type of claw. We may thus, in another way, again account for a lobster with two "similar nipning" chela.

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But the regeneration of two *crusher* claws can not be brought into either of these two categories; for, of course, they can not be explained as due to a "retarded differentiation," nor does it appear that they may be regarded as a "reversion to a phylogenetically later type." It is apparently impossible to interpret such a regeneration as a case of "compensatory regulation" in Zeleny's ('05) sense, for the regenerated chelæ are almost identically similar both in size and form. Nor is it clear that they can be brought under the category of "revisal" phenomena, if by this term we imply a reversed order of asymmetry. At present, therefore, this phenomenon must rather be described merely as the *substitution* by regeneration of a "crushing" claw in place of an original "nipping" claw.

I have no suggestion to offer in explanation of these two cases of the regeneration of similar crusher chelæ. Evidently the regenerative cells in the stump remaining after autotomy may have the potentiality of either a "crushing" or "nipping" claw. But what factors determined that a claw of the crusher type be produced is another question. Wilson's ('03) suggestion for *Alpheus*, "that the initial factor (Auslösung) that sets in motion the complex process of differentiation of which either side is capable is primarily only a difference in the amount of material on the two sides" (p. 210), can hardly apply here, for the chelæ were both removed autotomously and at the same time, consequently there seems no reason to believe that the "amount of material" was unequal on the two sides. As far as the present data goes, the regeneration of similar "crushing" claws still remains unexplained.

3. *Regarding the Origin of Abnormal Appendages.*

a. Discussion of Theories with Special Reference to the Regeneration Theory.

Three possible theories have been proposed for the origin of abnormal chelæ among crustacea:

1. That they are congenital or inherited.

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2. That they are caused by injuries sustained after moulting.
3. That they are regenerative products.

But there is considerable divergence of opinion regarding the relative importance of these different theories.

Faxon, in discussing his case of "duplicate" chela in *Homarus*, which resembles somewhat specimen No. 5, of our list, remarks that "whether this monstrosity be congenital, or the result of injuries received later in life, I can not tell" (p. 263); although later, when referring to this same case he adds, that "it is very probable that we are dealing with a monstrosity which is not the result of injury" (p. 267). Again, in regard to another case, a double index and two dactyls (Plate I, Fig. 13), he thinks that "one can easily believe that this is a congenital monstrosity" (p. 260). A fair interpretation of Faxon's conclusions seems to be that he is inclined to consider all cases of duplicate or triple chelæ as congenital in their origin, while he considers that simpler deformities, as, for example, specimens 1 and 2 of our list, "are more naturally explained as malformations arising from injuries received after moulting" (p. 260).

Bateson evidently gives least importance to the second and third theories, for, in regard to this question, he says: "A good many authors from the time of Rösel von Rosenhof onward, have said that these cases are a result of injury, or of regeneration after injury. For this belief I know no ground. It should be remembered as an additional difficulty in the way of this belief, that when the limb of a crab or lobster is injured it is usually thrown off bodily, while the extra parts most often spring from the periphery of the chela" (p. 526).

Andrews, in discussing his case of "an aberrant limb in a crayfish," states that "The appearance of the limb suggests a new growth following some injury in which the material for claw making was partly severed and displaced." As to when this injury may have occurred, he merely suggests that it "might happen, we can suppose, not only in the egg and in the young, but in the adult, especially at the periods of shedding when the interior of the claw is soft and the blood

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peculiar;" or, again, that probably "such a monstrosity as this might arise in regeneration following an injury to the propodite" (p. 83).

Herrick, ('95) on the one hand, is inclined to favor the regeneration theory for these deformities. Although he points out that "repetition of parts, however, occurs in many insects and vertebrates where no such regeneration of lost appendages is known," he finally concludes that "while it would appear that the various deformities which have been described can not be explained as the result of injuries and the attempted regeneration of injured parts, ... yet I can not escape the conviction that the problem is in some way directly concerned with that of regeneration" (p. 148).

But in regard to lobsters with similar chelæ, Herrick evidently favors the congenital theory; for in his discussion of symmetrical chelæ, he states "That there seems to be about as much variation as regards the details here mentioned in normal symmetrical claws as in the abnormal symmetrical ones, and it is probable that in either case the conditions met with are to some extent congenital" (p. 144). Quite recently Dr. Calman's ('06) case of a lobster with two crusher claws has been interpreted as further discrediting the regeneration theory for symmetrical chelæ, as may be seen in the following statement: "It has been supposed that this might be due to regeneration after injury, since it is known that in Brachyura, on the removal of the crushing claw, a cutting claw is regenerated. Przibram,* however, failed to obtain such "heteromorphic" regeneration in the lobster, and the present specimen throws still further doubt on the regeneration theory, since it possesses well-developed and quite typical crushing chelæ on both sides of the body" (p. 634).

In this brief review of theories for abnormal chelæ, it appears that the majority of the above investigators have emphasized the origin of such abnormalities through congenital sources, and injuries after moulting; while others have discussed the possibility of their being regeneration products. But it is important to note that in no case

*'02, p. 12, and '05, p. 191.

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have any of these writers furnished positive experimental evidence for their conclusions. I have been unable to find in their descriptions any proof that double limbs or symmetrical crusher chela have ever arisen in a congenital manner. While the theory of injuries after moulting seems very plausible, proof still remains to be produced. Apparently the first case of double claws of which the origin and history is positively known is the specimen recently discribed by Zeleny ('05); who, in one of his experiments, obtained the regeneration of a double chela in the fiddler crab. It is evident, then, that before we can hope to clear up this question, we need more accurate data on the formation of these abnormal structures.

Specimens Nos. 7, 8, 9, may be something of a contribution toward this required data. Attention has been called to the fact that *all these cases are regeneration products.* In these specimens we have at least two authentic cases of the regeneration of similar crushing chelæ, and one case of the regeneration of a triple claw of the type which both Faxon and Bateson were strongly inclined to be only congenital in origin. These three cases, together with Zeleny's, serve, therefore, *to establish the process of regeneration as a factor in the origin of abnormalities in crustacean limbs.*

b. Further Considerations Favoring the Regeneration Theory.

1. *That the Abnormal Crustacean Limbs Found so far have been only on Adult Animals.*

If double or triple claws are congenital in their origin, we might expect to occasionally meet such abnormalities in very young lobsters. The lobster hatchery at the experiment station of the Rhode Island Commission of Inland Fisheries furnishes an excellent opportunity for such observations. But among the hundreds of thousands of lobsters reared yearly from the egg, no case of chela repetition has yet been reported; and I have also personally examined with care something over 2,000 fourth and fifth-stage lobsters without observing a single case of duplication of parts in the chelipeds.

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I have also casually examined many thousands of young "fry" as they were being individually counted and taken from the hatching pools during the hatching season, but I did not find a lobster with double limbs.

2. *That the Great Majority of these Deformities are also Found only on the More Distal Segments of the Limbs.*

In some sixty-five cases of abnormal chelæ recorded by Bateson, all but *three* of these deformed parts are found on the two distal segments of the appendage. It will be recalled that Bateson considered one difficulty in the regeneration theory to consist in the fact "that when the limb of a crab or lobster is injured it is usually thrown off bodily;" although it should be observed that he hastened to add that "since, according to Heinekin, such mutilated parts are sometimes retained, this must not be insisted upon" (p. 526). Now it is quite true that when the limb is injured the whole appendage may be autotomously thrown off, but this requires an important qualification; for whether the limb is always thrown off or not depends upon the character and location of injury. In some experiments on regeneration ('05) I had occasion to mutilate the limbs of lobsters at different levels of the appendages. In the course of these mutilations I found that if the cheliped or leg was crushed by a pair of tweezers the whole limb was almost invariably autotomously dropped, practically regardless of the region of injury. But by the exercise of considerable care it was discovered that if the tip of the limb was cut off with a quick, sharp stroke, the remainder of the appendage was usually retained. On the contrary, however, if the cut was made near the base of the appendages, say in the region of the ischiopodite and meropodite, the remaining stumps were usually dropped. Furthermore, I have since found that the same conditions also hold true for regenerating buds; if the buds are injured near the tip the remaining structure is much less likely to be dropped than if the injuries are made in the proximal regions. In view of the fact, therefore, that in proximal

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wounds the whole limb is usually autotomised, while in distal injuries the limbs are quite frequently retained and the lost parts restored by regeneration,—it follows that if abnormal structures do arise as the result of the injury of normal and regenerating buds, it would be most natural to expect that such abnormal structures would be most frequently found on the distal segments. In our examination of Faxon's and Bateson's lists, we have found that this is exactly the case.

Taking into account, then, these relations between the nature of the injury, autotomy, and regeneration, it appears, therefore, that the fact that the great majority of crustacean deformities occur on the distal segments of the limb readily lends itself to the interpretation that they are the result of regenerative processes.

3. *The Regeneration of Extra Legs Following an Artificial Splitting of Nerves.*

3. A third point of importance is the effect of injuries which involve a division of the nerve. Miss Reed ('04) in her study of regeneration mentions certian results which she obtained in the hermit crab by splitting the stump of the leg lengthwise after autotomy had taken place. "In several cases after splitting the stump, two extra legs appeared in a short while. Sections through this region show that the nerve is split, one branch going to each leg. It is probable that a new leg was developed at each end of the split nerve, since in all other cases where only one leg regenerated the nerve shows no sign of any injury. In this case it is probable that the nerve was not cut" (p. 315). Unfortunately, Miss Reed has not described these regenerated extra legs, but this result is certainly very suggestive; it not only furnishes further evidence for the origin of extra structures through regenerative processes, but also indicates an important method for future experiments. In view of these results one is also tempted to ask whether the rare case of triple legs recorded by Bateson for the European lobster (No. 808) may not

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have arisen through an accidental fracture of the nerve stump and a consequent triple regeneration.

In the conclusion of this study of abnormal structures, therefore, we may say that sufficient evidence has now been adduced to prove that both abnormal symmetrical and duplicated appendages among curstacea do arise through the process of regeneration. And the experimental results so far attained indicate that we may yet be able to control the formation of these abnormalities by proper mutilation, and thus open up for experimental study an important field of organic variation.

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Reference Letters for Plates I—IX.

a, a′.	Injured regions.
BS.	Sixth limb segment or basipodite.
C.	Third segment or carpopodite.
C′(R+L).	Double extra carpopodite.
D.	First segment or dactyl.
D′L.	Extra left dactyl.
D′R.	Extra right dactyl.
D′(R+L).	Abnormal processes interpreted as being morphologically double extra dactyls.
g.	Groove.
h.	Tactile hairs.
I.	Jaw part of second segment or index.
IS.	Fifth segment or ischiopodite.
I′R′.	Extra right index.
I′L′.	Extra left index.
I′(R+L).	Abnormal process interpreted as being morphologically double extra indices.
j.	Joint.
L′.	Extra left chela.
M.	Fourth segment or meropodite.
M′.	Extra meropodite.
P.	Group of teeth in periodic sequence.
pp.	Papilla.
Pr.	Second segment or propodite.
P′R′.	Extra right propodite.
P′L′.	Extra left propodite.
R′.	Extra right chela.
S.	Scar.
t.	Teeth.
t^2.	Characteristic double teeth on crusher claw.
v.	Ventral surface.
1, 2.	The two parts of the extra bud shown in Figs. 10–14.

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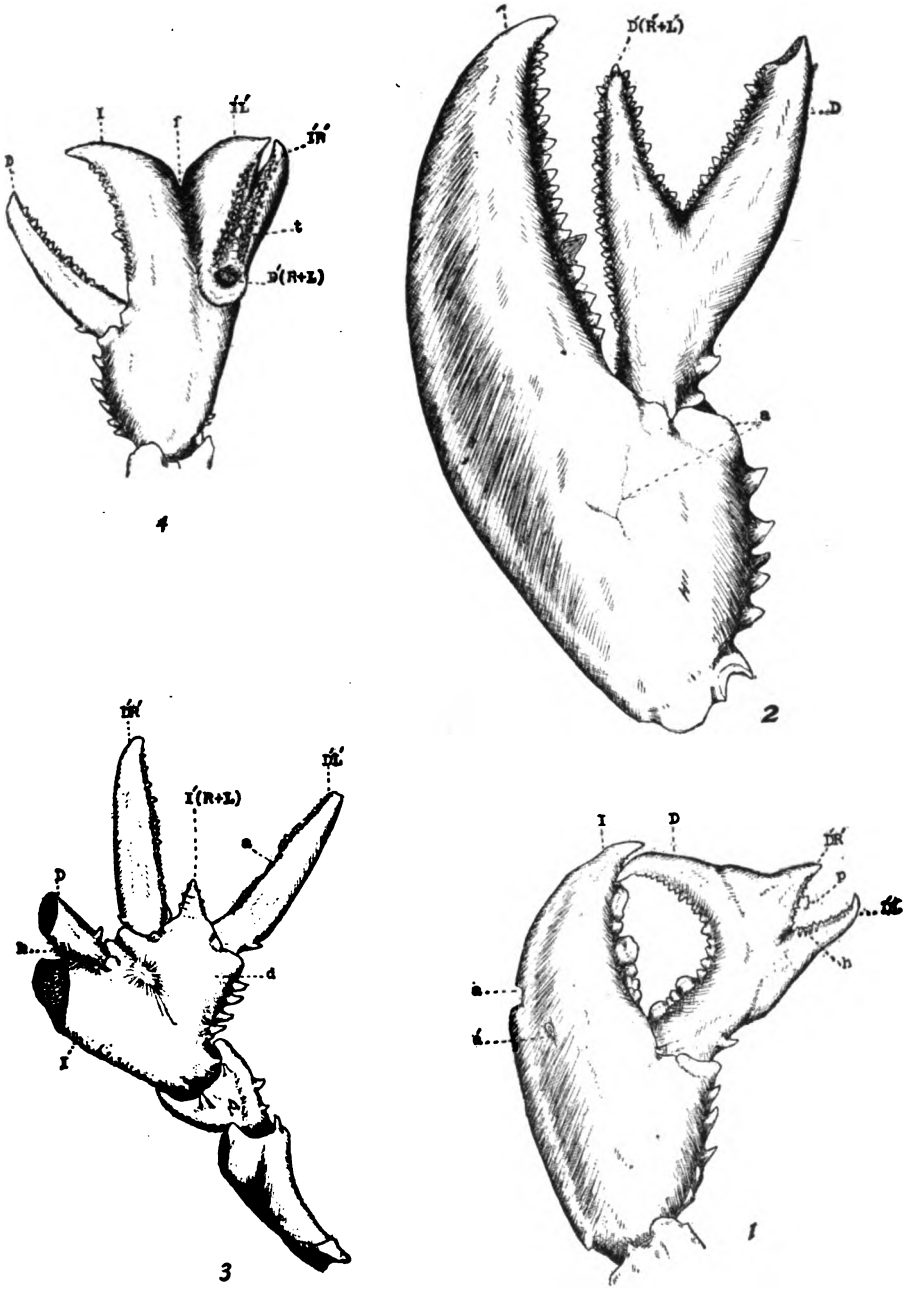

PLATE I.

Fig. 1 (*Page* 103).—Crusher claw of left chela with two extra processes (D'R', D'L') on the outer or smooth border of the normal dactyl. (½ x natural size.)

Fig. 2 (*Page* 104).—Nipper claw of left chela with an extra process D'(R'+L') on the inner or toothed border of dactyl. (⅔ x.)

Fig. 3 (*Page* 105).—Left chela with two extra dactyls (D'R', D'L'), and an extra double index, I'(R+L). (⅔ x.)

Fig. 4 (*Page* 107).—Nipper claw on right chela with two extra indices (I'L', I'R') and the stump of a double extra dactyl (?). D'(R+L). (½ x.)

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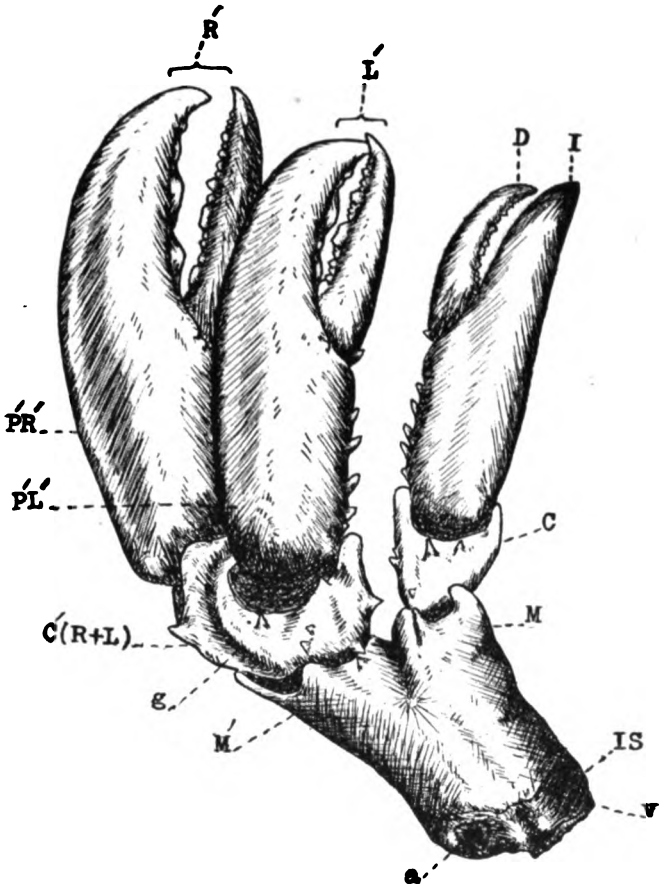

PLATE II.

Fig. 5 (*Page* 108).—Abnormal right chela consisting of the approximately normal claw (D, I) plus the two extra claws R′ and L′. This appears to be one of the most perfect cases of triple claws so far recorded for the lobster. (Natural size.)

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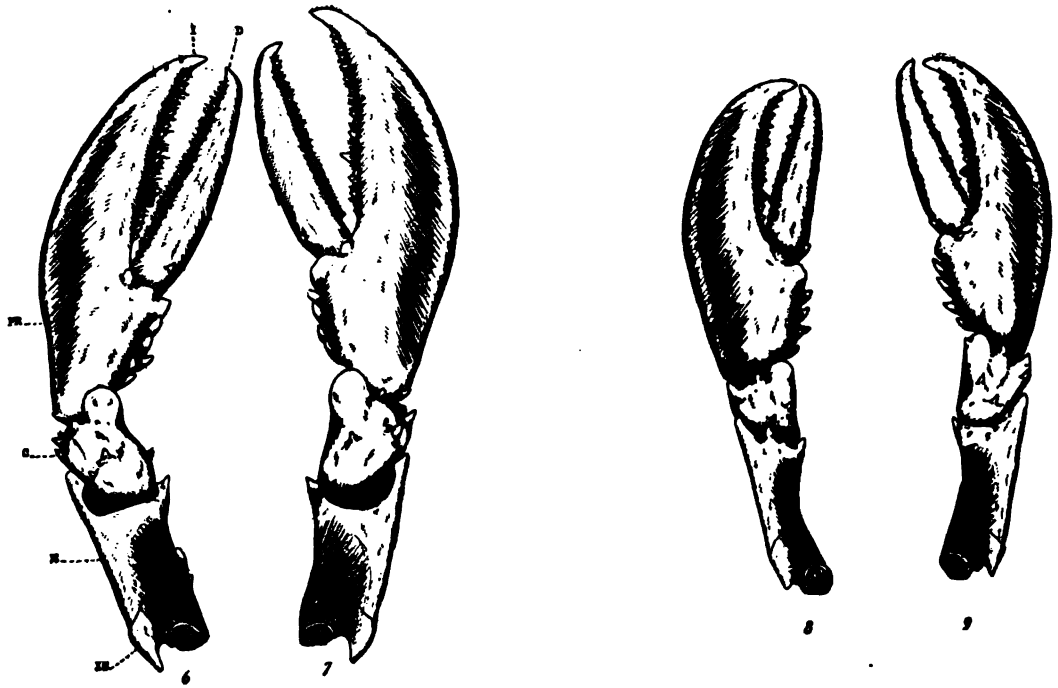

PLATE III.

Figs. 6 *and* 7 (*Page* 112).—Abnormally symmetrical chelæ of the nipper type. Figures 6 and 7 respectively, represent the left and right limbs. (½ x.)

Figs. 8 *and* 9.—Chelæ which regenerated after the amputation of the original symmetrical limbs shown in Figures 6 and 7. The regenerative processes have reproduced the previous abnormal symmetry. (½ x.)

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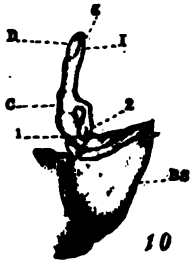

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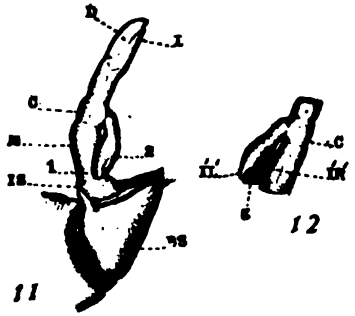

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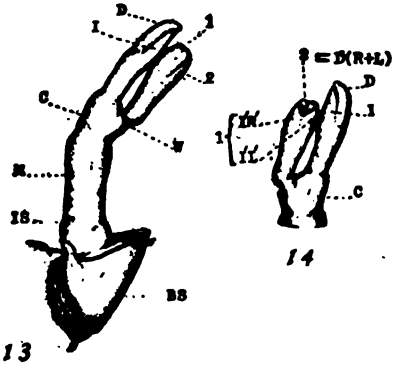

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Plate IV.

Figs. 10–15 (*Page* 113).—Successive stages in the regeneration of a double extra claw on a second right walking leg. (1½ x.)

Fig. 10.—Thirty-fifth day after the amputation of the original leg, showing the development of an extra bud (1, 2). (Posterior view.)

Fig. 11.—Forty-third day of regeneration. (Posterior view.)

Fig. 12.—Anterior view of the extra bud.

Fig. 13.—Forty-eighth day. Extra bud had been accidently injured and pushed upward. (Posterior view.)

Fig. 14.—Anterior view of the extra bud.

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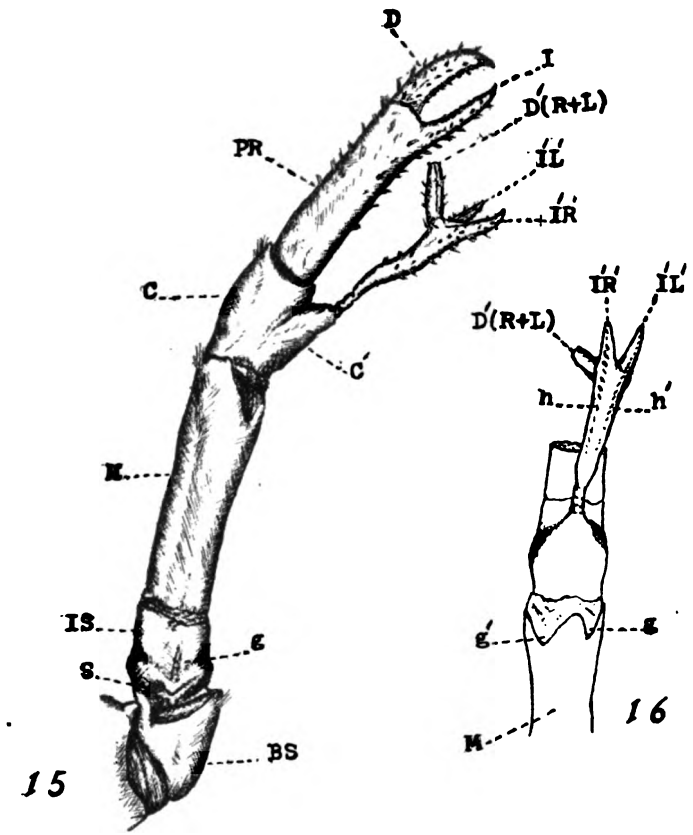

PLATE V.

Fig. 15 (*Page* 116).—Regenerated right walking leg with a pair of extra claws D'(R+L), I'L', and I'R'. Drawn just after the moult. See earlier stages shown in Figures 10–14. (Posterior view. 1½ x.)

Fig. 16.—Sketch of ventral view of the extra claws to show the two indices, I'R' and IL. (1½ x.)

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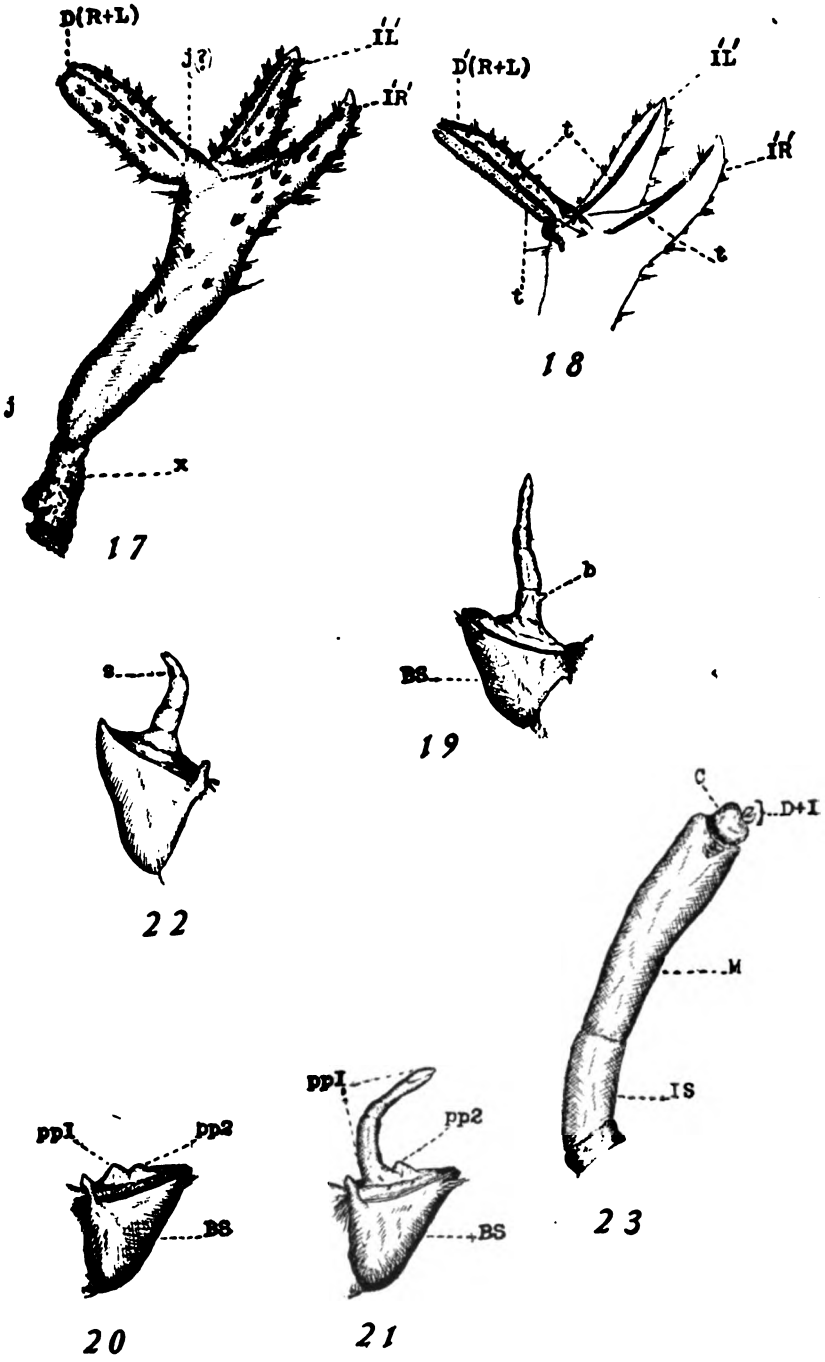

PLATE VI,

Figs. 17 *and* 18 (*Page* 116). Drawings to indicate the structure and relations in the extra claws shown in Figure 15. (Posterior view. 4 x.)

Fig. 19 (*Page* 118).—Regenerating fourth left leg with an abnormal bud (b). (4 x.)

Figs. 20, 21 (*Page* 119).—Two regenerating papillæ, (pp. 1 pp 2) on a second right leg. (Posterior view. 2 x.)

Fig. 22 (*Page* 120).—Regenerating bud of a walking leg. The tip had been cut off at the region indicated by the scar (s), but had grown out again. (2 x.)

Fig. 23 (*Page* 121).—An unusual rudimentary claw (D+I) which regenerated on the tip of a leg which had been cut off just above the second distal joint. (1½ x.)

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24 25 26 27

Plate VII

Figs. 24–27 (*Page* 121).—Figs. 24 and 25 are photographs of the original normal chelæ of an 8-inch female lobster, showing the usual asymmetry of claws with a nipper on the right (Fig. 25) and a crusher on the left (Fig. 24). (About ½ natural size.)

Figs. 26 *and* 27.—Photographs of the left and right chelæ, respectively, which regenerated after the amputation of the original limbs. In this case two crushers, in place of the former nipper and crusher, have regenerated. (About ½ natural size.)

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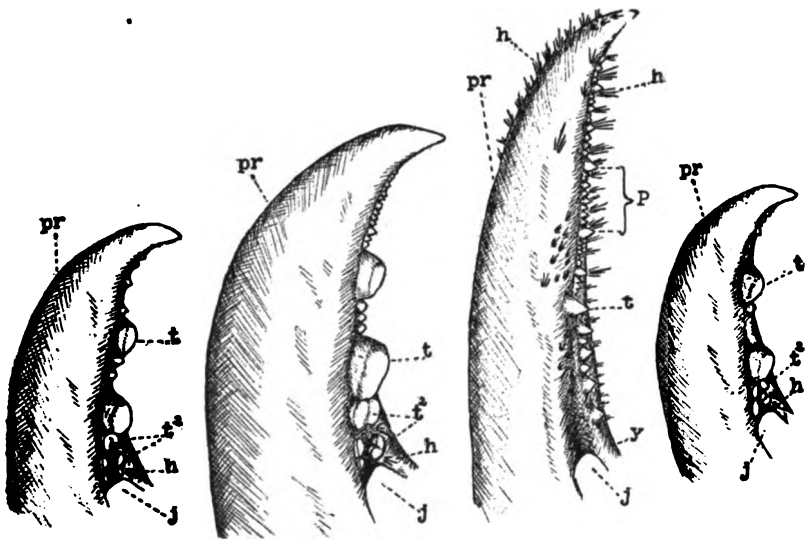

PLATE VIII.

Figs, 28–31 (*Page* 121).—4-3 natural size. Figs. 29 and 30 show the index or propodite part of the original claws represented in Plate VII, Figs. 24 and 25. Fig. 29, index of normal left crusher. (Drawn from the upper face.) Fig. 30, index of normal right nipper. (Drawn from the lower face.)

Figs. 28 *and* 31 represent the index of the regenerated claws shown in Plate VII, Figs. 26 and 27. Fig. 28, index of regenerated left crusher. (Drawn from upper face.) Fig. 31 index of regenerated right claw. (Drawn from lower face.)

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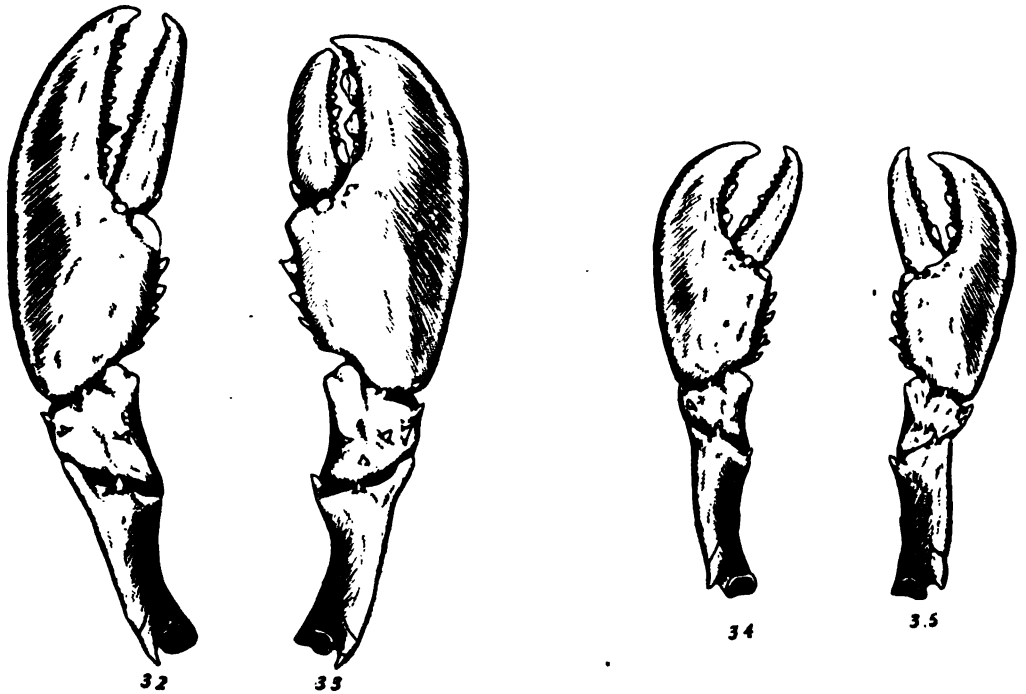

Plate IX.

Figs. 32–35 (*Page* 125).—(½ x.) Figs. 32 and 33 show the original normal chelæ of an 8-inch male lobster; the left is a crusher (Fig. 32) and the right a nipper (Fig. 33).

Figs. 34 *and* 35.—The left and right chelæ, respectively which regenerated after the amputation of the original limbs. The regenerative processes have produced two crushers in place of the normal nipper and crusher.

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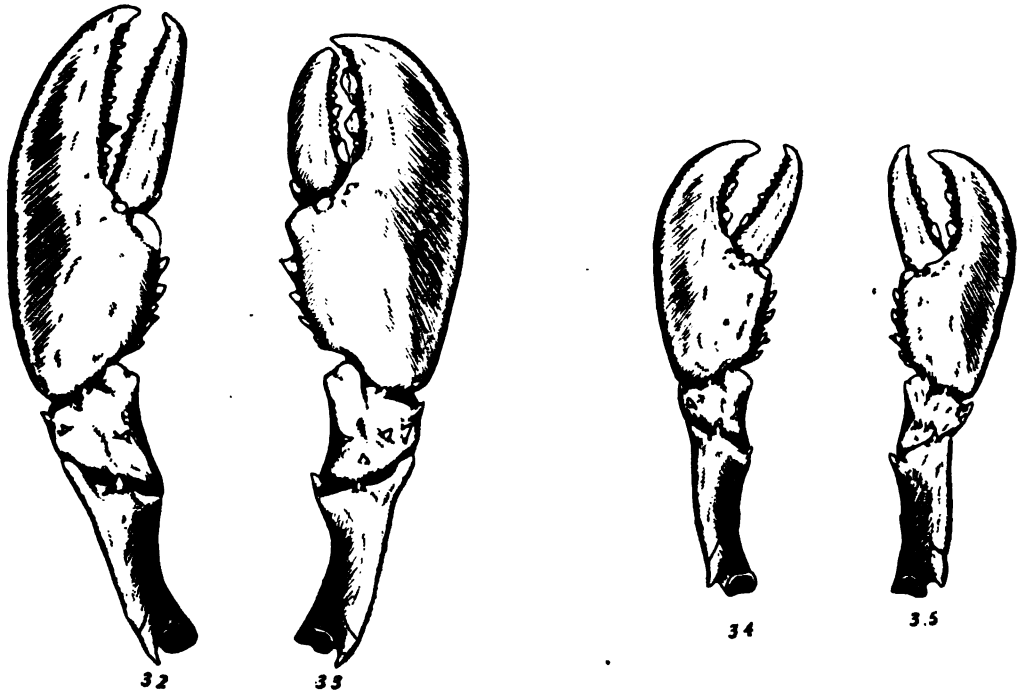

PLATE IX.

Figs. 32–35 (*Page* 125).—(½ x.) Figs. 32 and 33 show the original normal chelæ of an 8-inch male lobster; the left is a crusher (Fig. 32) and the right a nipper (Fig. 33).

Figs. 34 *and* 35.—The left and right chelæ, respectively which regenerated after the amputation of the original limbs. The regenerative processes have produced two crushers in place of the normal nipper and crusher.

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THE STOMACH OF THE LOBSTER AND THE FOOD OF LARVAL LOBSTERS.

LEONARD W. WILLIAMS, PH. D.

The external anatomy of the bizarre and attractive larval lobsters has been studied, described, and figured with great care, but the internal anatomy of these forms has received scant attention, and for this reason we hope that the work recorded here will be of interest.

The Commission of Inland Fisheries of Rhode Island is studying the various problems, anatomical, biological, and physiological, concerning the natural history of the lobster in connection with its experimental and economic work of hatching and rearing lobsters at the Wickford station. As a part of this work, we were asked to investigate the food of the larval lobsters in the hatching and rearing bags of the station. While examining the alimentary canal of many lobsters we discovered the metamorphosis of the stomach which we here figure and describe. This work naturally demanded an understanding of the adult stomach, and, not finding satisfactory descriptions of the structure and functions of the adult stomach, we were compelled to extend our work to include the anatomy of the stomach of lobsters of all ages.

We are indebted to the Commissioners of Inland Fisheries, especially to Dr. A. D. Mead, for the opportunity to do this work, and to Mr. V. E. Emmel and to Mr. P. B. Hadley for the use of serial sections of young lobsters prepared by them.

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THE STOMACH OF THE ADULT LOBSTER.

The Mouth.

The mouth of the lobster lies on the lower surface of the head between the mandibles which, when closed, hide the mouth opening. Just in front of the mandibles there is a large median fleshy lobe, the labrum, or upper lip, which forms the anterior margin of the mouth opening. When the mouth is closed, the hinder surface of the labrum projects backward as a median vertical ridge which is prolonged upward through the œsophagus and which makes the mouth V-shaped. The sides of the mouth are formed by a pair of rounded ridges which become higher and converge posteriorly where each ridge expands into a flat boot-shaped plate which is fringed with bristles. These two lobes form the metastoma, or lower lip, which projects downward in the narrow cleft between the mandibles and the first maxillæ. The dilation of the mouth is affected by the pulling forward of the posterior ridge of the labrum so that the opening becomes approximately circular.

The Œsophagus.

The œsophagus is a short vertical canal which passes upward from the mouth between the circumæsophageal connectives and enters the lower side of the stomach. The empty œsophagus is externally cylindrical, except that it is somewhat flattened laterally. The ridge which is a vertical prolongation of the labrum projects backward into the lumen of the œsophagus and makes it trough-shaped (V-shaped) in cross section.

This ridge is everted forward during dilation of the œsophagus, and so serves to increase largely the size of the œsophagus.

The Stomach.

The stomach, in all stages, is divided by an oblique constriction into a capacious anterior storage chamber, the cardiac portion of

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the stomach or cardiac sac, and a small posterior straining and sorting chamber, the pyloric portion of the stomach or pyloricsac. Corresponding to the external constriction, internally there is a grinding apparatus which, in the adult form of the stomach, consists of a median tooth and a pair of lateral teeth.

The wall of the stomach is formed of four layers of tissue:

1. An outer layer of connective tissue. This sheet stretches over the irregularities of the stomach and gives the whole exterior a somewhat rounded form. In places this outer layer of the stomach is covered by the vascular epithelium (Plate VI, Fig. 9).

2. A layer of loose connective tissue. This tissue fills up the irregular cavities between the inner and outer contours of the stomach wall and contains the blood vessels and intrinsic muscles of the stomach.

3. The gastric epithelium. This varies in thickness and, correspondingly, in the shape of the cells according to the thickness of the chitinous stomach lining.

4. The chitinous lining of the stomach. This is generally covered with setæ of various kinds and in places it is thickened. A deposition of lime in these thickened areas converts them into "the ossicles" which form the skeleton of the gastric mill.

The Gastric Ossicles and Muscles.

In the American lobster the gastric ossicles are essentially like those of the European lobster (*Homarus vulgaris*) and the crayfish (*Astacus fluviatalis*), which have been adequately described by Milne Edwards, Oesterlen, Huxley, and T. J. Parker, hence we will omit an extended description of them. We will give generally two names for each ossicle, the shorter names used by Huxley and Parker, and the longer but more descriptive names of Albert. Beginning at the anterior end of the dorsal surface:

1. The cardiac ossicle or anterior dorsal cardiac plate. This covers nearly the whole of the dorsal surface of the cardiac sac. In

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our specimens it is divided by a transverse joint into two plates. The anterior plate is calcified only at the postero-ventral angles. The anterior gastric muscles (Plate I, Fig. 1), a pair of heavy flattened muscles, arise from the procephalic processes (which are reniform plates attached to the septa between the eyes and the rostrum) and are inserted upon the anterior end of the anterior portion of the dorsal cardiac plate.

2. The urocardiac ossicle or posterior dorsal cardiac plate. This is narrower than the cardiac ossicle and inclines downward and backward so as to form part of the posterior wall of the cardiac sac.

3. The prepyloric ossicle or median tooth. This forms the antero-dorsal wall of the pyloric sac.

4. The pyloric ossicle or anterior dorsal pyloric plate. This plate is covered by the insertion of the posterior gastric muscles which arise from the carapace just in front of the cervical groove and from the internal ridge corresponding to the groove.

On the upper part of the side of the stomach there are:

5. The pterocardiac ossicle or anterior dorso-lateral plate.

6. The zygocardiac ossicle or middle dorso-lateral cardiac plate or lateral tooth. This is an irregular parallelogramic vertical plate whose upper anterior angle is bent outward and downward to articulate with the lower end of the pterocardiac ossicle and whose upper posterior angle is turned inward nearly to the pyloric ossicle. The inner surface of the lower edge of this plate is heavy and irregular and forms the grinding surface of the lateral tooth.

7. The anterior dorso-lateral pyloric plate. This is a triangular plate interposed between the lateral tooth and the pyloric plate. The postero-lateral gastric muscle arises from an area of the carapace bounded behind by the cervical groove, below by the branchio-cardiac groove, and above by the posterior gastric muscle and, passing inward, forward, and downward, is inserted upon the anterior dorso-lateral pyloric plate. The division between the posterior and postero-lateral gastric muscles and between the pyloric and anterior dorso-lateral pyloric plates seems to be lacking in other forms or to

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have been overlooked by everyone except Albert and is, in our opinion, of great importance (see page 158). The cardio-pyloric muscle, a small band, extends from the upper end of the anterior dorso-lateral pyloric plate and the adjacent upper edge of the lateral tooth forward above the outer end of the cardiac ossicle to the upper part of the anterior edge of the ptero-cardiac ossicle.

The plates, teeth, and muscles described above form the essential parts of the gastric mill, which consists of two portions, the median and the lateral, which are so closely connected that their actions are absolutely coördinated.

The median portion of the gastric mill includes the four median plates mentioned above and the anterior and posterior gastric muscles. The two horizontal plates, the cardiac and pyloric, are connected by the urocardiac plate and the median tooth, the former being attached to the latter at the junction of its lower and middle thirds. The contraction of the anterior and posterior gastric muscles draws apart the cardiac and pyloric plates and as these plates separate the urocardiac ossicle pulls the lower end of the median tooth forward, the former acting as the power applied to the latter as a lever of the third order at a point about two-thirds of the length of the lever from the fulcrum, *i. e.*, the articulation of the median tooth with the pyloric plate. Thus the median tooth is drawn forward with great force.

The lateral portion of the gastric mill consists of:

The pterocardiac bar which is hinged on the outer end of the cardiac plate so as to make a right angle with that plate and so that its lower end moves from the position of rest inward and backward in a vertical plane inclined forward at an angle of 75 or 80 degrees with the sagittal axis; the lateral tooth whose anterior upper angle is attached to the pterocardiac bar and so moves inward and backward with that point and whose posterior upper angle is fixed to the outer anterior angle of the pyloric plate; and the anterior dorso-lateral pyloric plate which receives the insertion of the postero-lateral gastric muscle and which is attached to the posterior edge of the lateral tooth. The

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posterior intermediate cardiac bar is attached to the lower side of the lateral tooth at a point about one-third of its length from the anterior end.

The separation of the cardiac and pyloric plates necessitates a downward, inward, and upward swing of the anterior upper angle of the lateral tooth which carries the anterior end of the grinding surface of that tooth toward the median line. At the same time the contraction of the postero-lateral gastric muscles pulls the posterior end of the lateral tooth outward and upward, and the tooth, rotating on the line between its articulations with the upper end of the anterior dorso-lateral pyloric plate and with the posterior intermediate cardiac plate, drives its anterior cusps inward with considerable force. When the gastric muscles relax the elasticity of the structures, coupled with the pull of the cardio-pyloric muscles, draws the median tooth backward and the lateral teeth outward.

Returning to the enumeration of the ossicles of the stomach we find on its sides the following:

8. The gastrolithic bar. This is a sigmoid bar whose upturned posterior end articulates with the pterocardiac ossicle, the anterior end of the lateral tooth, and the bar to be described next. Its anterior end follows for a short distance the upper edge of the gastrolithic plate, which is a triangularly ovate epithelial plate that during the latter part of the period between molts secretes a thick plate of lime, the gastrolith (see page 172).

9. The accessory lateral cardiac ossicle or upper intermediate cardiac bar extends with a gentle curve backward and then downward from between the preceding bar and the pterocardiac bar to:

10. The infero-lateral tooth, which is an irregular plate with three acute cusps upon its anterior edge.

11. The lower intermediate cardiac bar. This extends backward from the preceding tooth to:

12. The upper ventro-lateral cardiac bar, which passes forward along the ventral side of the cardiac sac to the œsophagus where it bears upon its upper side:

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13. The antero-lateral cardiac bar. This bar extends obliquely upward and forward almost to the antero-ventral angle of the gastrolith.

The posterior lateral dilator muscle arises from the postero-lateral angle of the mandibular sternum, extends upward, inward, and backward to its insertion upon the antero-lateral cardiac bar.

14. Immediately below the upper ventro-lateral cardiac bar lies the lower ventro-lateral cardiac bar, which has much the same shape as that bar but extends farther backward. The posterior ends of these two bars are hinged upon one another so that they open and shut like a pair of pincers.

15. The ventral cardiac plate. This is a small oval median plate lying between the posterior ends of the lower ventro-lateral cardiac bars.

16. The posterior intermediate cardiac bar passes obliquely upward and forward from the posterior end of the lower ventro-lateral cardiac bar to the lateral tooth.

The lower lateral cardiac constrictor muscle extends upward and forward from the entire upper edge of the lower ventro-lateral cardiac bar to a slight thickening of the stomach wall which lies midway between the gastrolith and the lower ventro-lateral cardiac bar. The contraction of this muscle draws together the two edges of a fold of the stomach wall and thus causes the fold to project farther into the lumen of stomach.

The ventral cardiac constrictor extends between the right and left lower ventro-lateral cardiac bars.

The cardiac sac is irregularly ovate. Its greatest width lies between the pterocardiac ossicles and its smaller end opens into the pyloric sac. Its dorsal surface follows the curvature of the adjacent carapace and its anterior surface is uniformly convex when distended. The somewhat flattened sides of the sac converge below so that its ventral surface is reduced to a narrow band between the ventro-lateral cardiac bars and a larger area in front of the œsophagus.

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As the stomach becomes empty its anterior wall is drawn inward in the form of a pair of large upper folds and a pair of smaller lower folds. At the same time the portions of the side wall of the sac above and below the gastrolith push, respectively, inward and downward, and upward and inward over the inner surface of the gastrolith.

The dorsal dilator muscle arises from the dorsal surface of the carapace, and, as it passes downward and backward, its fibres diverge and are inserted upon the upper part of the anterior wall of the stomach.

The anterior dilator muscle is a moderately strong round muscle, which arises from the outer surface of the socket of the eye, passes backward and slightly downward to the outer surface of the lower fold of the anterior wall of the stomach. The anterior lateral dilator muscle arises with the posterior lateral dilator from the mandibular sternum and is inserted upon the lower part of the anterior wall of the stomach.

The upper lateral cardiac constrictor muscle is a fan-shaped muscle which extends from its broad origin on the upper edge of the lateral tooth to the posterior end of the lower ventro-lateral cardiac bar. The middle lateral cardiac constrictor muscle arises from the upper end of the upper intermediate cardiac bar, and, extending downward and backward, is inserted in front of the preceding muscle.

Removing the muscles and the loose tissue of the second layer of the stomach wall, we expose the following invaginations of the two inner layers of the stomach wall which correspond to internal projections. A deep broad dorsal pit which extends downward between the median tooth and the urocardiac bar to the cavity of the tooth. On each side of the median tooth there is an oval elevation, the posterior dorsal pad, which projects inward into the space between the median and lateral teeth and the outer wall of the stomach, and which is densely covered with downwardly directed bristles. Just in front of this pad is a small cusp which forms the postero-lateral angle of the urocardiac plate. This cusp is connected with its mate by a strong transverse ridge on the upper side of the plate. These cusps form a kind of flange on each side of the median tooth which

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prevents it from going too far down between the lateral teeth. A little in front and outside of this cusp there is another elevation, the anterior dorsal pad, which is covered with downwardly directed bristles. A deep longitudinal groove extends backward from the lower side of the gastrolith into the lateral tooth. Just below the anterior end of the lateral tooth a deep tubular invagination, whose walls form the upper lateral pad, extends upward in front of the tooth. Behind the infero-lateral tooth, below the lateral tooth, and below and behind the preceding pit, is a larger, but shallower, pit, the middle lateral pad.

The œsophageal opening is guarded by a median and a pair of lateral valves. The median valve is formed by a triangular broadening of the upper end of the vertical ridge of the œsophagus. The lateral walls of the œsophagus are prolonged upward into a ridge-like valve which nearly encircles the œsophageal opening and which is higher on each side than behind the opening. The three valves are covered with a thick pile of long slender bristles which point towards the stomach.

The anterior constrictor muscle arises from the middle of the mandibular sternum and, passing backward and slightly upward, is inserted upon the upper edge of the median œsophageal valve. Its contraction pulls down the anterior wall of the stomach and causes it to fold inward.

The anterior wall of the stomach is covered with a similar coat of bristles which are inclined in various directions in such a manner that when the anterior folds are pushed inward the bristles point toward the gastric mill. The upper wall of the stomach is smooth, as also is the inner face of the gastrolith.

Upon the inside of the stomach we find the anterior two thirds of the upper part of the side occupied by the smooth surface of the gastrolith and the posterior one-third by the upper and middle lateral pads. The lower part of the side is formed by a large lateral plate which is bounded below by the upper ventro-lateral cardiac bar, above by the lower intermediate cardiac bar, the infero-lateral tooth,

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and the gastrolith, and in front by the anterior lateral bar. The lower edge of this plate forms a large fold, the lower lateral pad, which overlaps the ventral surface of the stomach so as to enclose on each side a deep groove which extends the whole length of the ventro-lateral cardiac bar, *i. e.*, from the œsophagus to the pyloric sac.

The ventral surface of the sac is raised into a low narrow median ridge which ends abruptly above the ventral cardiac plate in a rounded point. Near the middle of this ridge, there begins on each side a ridge which quickly becomes higher posteriorly and, meeting its mate, the two spread out in a broad deeply channeled elevation, the cardio-pyloric valve, which has, in addition to its bilobed channeled anterior portion, a median posterior lobe. Its anterior surface is covered with a close pile of short, strong, upwardly and backwardly directed bristles, and the posterior lobe is armed with long upwardly directed bristles. The posterior portion of the lower edge of the lower lateral pad and the posterior edge of the middle lateral pad overlap the edges of the cardio-pyloric valve.

Each of the two grooves between the ventral and lateral walls of the cardiac sac is divided by a row of long, large, close-set, backwardly inclined bristles into two canals; an upper and outer, the upper cardiac canal, and a lower and inner, the lower cardiac canal. The bristles of the ventral ridge and of the lower lateral pad interlock so as to enclose both of these canals and the bristles separating them interlock with the bristles of the lower lateral pad, so that material can enter the upper cardiac canal only by passing through the lower canal and between the bristles which separate the canals. The outer and upper wall of the upper canal is smooth, while the lower and inner wall of the lower canal is closely beset with very short, heavy, upwardly-pointed bristles. The lower cardiac canal opens posteriorly into the groove upon the anterior surface of the cardio-pyloric valve, while the upper cardiac canal passes beside the valve and opens into the lower canal of the pyloric sac.

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The Pyloric Sac.

The pyloric sac is irregularly ovate and is considerably flattened laterally. Its cavity is a narrow vertical slit which is partially divided by ridges and pads into an upper and lower chamber and an upper, a middle, and two lower canals.

The opening from the pyloric sac into the intestine is guarded by four valves: The dorsal pyloric valve or "funnel"* is a pen-point shaped plate which reaches far into the intestine and partly separates the intestinal cæcum from the remainder of the intestinal cavity. The right and left lateral pyloric valves are triangular plates fringed with bristles and attached to the sides of the gastro-intestinal opening. They enclose a narrow passage which leads upward into the concavity of the dorsal valve. The ventral pyloric valve is a broad triangular horizontal plate which is separated from each lateral valve by a deep sinus and whose upper surface is covered with bristles. The wall of the intestine is attached to the bases of the dorsal and lateral valves, to the edge of the sinus between the lateral and ventral valves, and to the edges of the ventral valve. The intestinal cæcum is a broad pear-shaped evagination of the intestinal wall. It extends upward and forward over the posterior part of the dorsal wall of the stomach. The tubular duct of each half of the liver or digestive gland, an immense compound tubular gland, opens into the intestine between the ventral and the corresponding lateral pyloric valve. Jordan has shown that the finely comminuted food from the lower canal of the pyloric sac passes into the liver and is there digested and absorbed.

The dorsal surface of the pyloric sac is directed upward and backward, and is divided into two convexities and one concavity. The anterior convexity is formed by the pyloric and the anterior dorso-lateral pyloric plates, and it forms the roof of the upper pyloric

*That the funnel is not an essential structure is shown by the fact that a perfectly well, actively feeding lobster examined by us had lost the funnel. It probably acts as a valve to prevent the return of material to the stomach as is shown by the fact that it is sometimes found drawn down across the mouth of the middle canal.

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chamber which extends forward to the median tooth and downward to the level of the lateral tooth, where two longitudinally oval pads, the upper and lower pyloric pads, projecting from each side and covered with forwardly directed bristles, separate the upper pyloric chamber from the lower. The posterior convexity of the dorsal wall of the plyoric sac is formed by the middle dorsal pyloric plate (17), whose upper end and lateral edges are more heavily calcified than the remainder of the plate.

The superior dilator arises from the carapace in front of the cervical groove and, passing downward and forward, is inserted upon the middle dorsal pyloric plate.

18. The posterior dorsal pyloric plate is a small, scarcely clacified, dorsally concave, oval plate which supports the dorsal pyloric valve and which is covered with numerous backwardly directed bristles. The concavity of the dorsal wall is formed by this plate and is filled by the intestinal cæcum.

An inwardly projecting ridge which is supported by the corresponding edge of the middle dorsal pyloric plate, and which is covered anteriorly with long thick-set bristles directed forward and upward, separates the lower pyloric chamber from the upper canal. This canal extends the whole length of the middle dorsal pyloric plate and divides posteriorly, passing around the posterior dorsal pyloric plate in a pair of lateral canals which are formed by the wall of the pyloric sac adjacent to that plate and which open upward into the intestinal cæcum.

19. The upper intermediate pyloric bar passes forward horizontally from the upper end of the middle dorsal pyloric plate across the side of the pyloric sac. It supports the upper edge of the outwardly convex wall of the lower pyloric chamber.

20. The posterior intermediate plate is irregularly triangular and is concave inwardly. Its broad base supports the lateral pyloric valve. Its antero-dorsal edge supports the ridge that forms the lower side of the middle chamber. This ridge is heavily beset with bristles which seem to radiate upward, inward, and downward from

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the center of the ridge: those which are directed inward are curved downward at the tip as though bent down by the force of the food current. The wall of the lower chamber bears a few slender forwardly directed bristles. At the level of the posterior dorsal pyloric plate the ridges which form the upper and lower boundaries of the lower chamber meet and close completely the posterior end of that chamber. The right and left posterior intermediate pyloric plates enclose the middle canal, which is narrow in front and broadens posteriorly.

Each lower pyloric canal is divided into an anterior portion lying between the middle and lower intermediate pyloric plates and a posterior portion enclosed between the posterior part of the middle intermediate and the ventral pyloric plates. The posterior parts of the lower pyloric canals form the most essential structure of the pyloric sac, and they are contained in the lateral pouches.

21. The middle intermediate pyloric plate extends in a sigmoid curve from the posterior end of the lower ventro-lateral cardiac bar upward, backward, downward, and then backward and upward again. The plate is broad in the middle and narrower at each end. It is almost bisected by a curved cleft which reaches from its lower edge nearly to its upper edge and divides the portions connected respectively with the anterior and posterior portions of the lower canal.

22. The lower intermediate pyloric plate is roughly quadrilateral and is concave ventrally. It is connected with the lower ventro-lateral cardiac bar and, forming the floor of the pyloric sac behind and on the outer side of the cardio-pyloric valve, it supports the posterior side of that valve.

23. The ventral pyloric plate is formed by two pointed half-spiral portions which extend from the tips of the lateral pouches forward, inward, and upward, and unite in the median line, forming there a prow-like septum which projects upward between the posterior portions of the two lower canals. This septum supports the median portion of the ventral pyloric valve and is continued backward as a

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horizontal oval plate which lies between the lower edges of the lateral pyloric valve and separates the posterior ends of the middle and lower canals. The concave upper surface of each half of the ventral pyloric plate is covered by high parallel ridges which arise at the anterior edge of the plate and pass backward to a point two-thirds of the width of the plate from its anterior edge, where each ridge ends in a heavy band of chitin which diverges upward to the upper wall of the lower canal. Each ridge and band bears upon its distal or mesial side a row of close-set bristles which overlap the next ridge and band. These bristles cut off from the posterior part of the lower canal a number of parallel canals which open into a large transverse canal, the ventral part of the posterior portion of the pyloric canal.

The bands, ridges, and bristles form a fine-meshed sieve over which the food stream passes. The fluids and the fine-grained portion of the food pass from the dorsal part of the canal through the sieve into the ventral part of the canal, and through it, as Jordan has shown, into the liver whose duct opens into the posterior end of the ventral part of the lower canal. The particles which can not pass through the filter are carried inward and upward into the middle pyloric canal.

24. The posterior lateral intermediate plate is an irregular calcification which lies between the middle and posterior intermediate pyloric plates and the lateral pyloric valve. It faces the corresponding side of the septum of the pyloric plate.

The Muscles of the Pyloric Sac.

The upper constrictor muscle arises from the posterior part of the lower edge of the pyloric ossicle and, passing downward, and slightly forward, is inserted upon the anterior end of the middle intermediate pyloric plate.

The lower pyloric constrictor muscle arises from the middle dorsal pyloric plate and, its fibers converging, is inserted upon the middle intermediate pyloric plate behind the preceding.

The lateral pyloric constrictor muscle is a short, broad muscle which extends from the concave anterior surface of the middle inter-

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mediate pyloric plate to the corresponding edge of the lower intermediate pyloric plate.

The inferior pyloric dilator muscle has a double origin and a double insertion. One head arises from the cephalic apodeme near the œsophagus; the other head arises from the lower ventro-lateral cardiac bar. These bands, passing backward, unite, and then the muscle divides: One branch is inserted on the anterior surface of the lower intermediate pyloric bar; the other, uniting with the corresponding muscle from the other side, is inserted upon the median portion of the ventral pyloric plate.

Before attempting to explain the action of this extremely complicated stomach it is well to summarize briefly the facts described in detail above.

The bristles of the cardiac sac are all directed toward the gastric mill with the apparent exception that those of the lower part of the side walls are directed downward and backward.

All the bristles of the pyloric sac except those of the lower and middle canals are also directed *toward* the gastric mill.

The alternate contraction and expansion of the anterior, posterior, and postero-lateral gastric muscles (assisted feebly by the cardio-pyloric muscle and the elasticity of the stomach wall) cause the median tooth to move back and forth across the surfaces of the lateral teeth and also cause the lateral teeth to move inward.

The contraction of the lower lateral constrictor pushes the lower lateral pad inward and backward.

The cardio-pyloric valve is practically hinged upon the posterior ends of the ventro-lateral cardiac bars, and we believe that it is driven forward and upward by the contraction of the upper and middle lateral cardiac constrictors.

Again, we must remember that the upper cardiac canal leads along the base of the cardiac sac to the beginning of the lower pyloric canal. This canal passes along the base of the pyloric sac to the lateral pouches, where the coarser particles of the food are separated from the remainder.

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Finally, we maintain that particles between plates which move back and forth on one another, and which are covered with bristles all inclined in one direction, will invariably be carried in the direction of the inclination of the bristles. If this be so, the *modus operandi* of the stomach is as follows: (Plate III, Fig. 3) Food entering the stomach is retained by the œsophageal valve and is carried backward and upward between the lateral plates, the lower and middle lateral pads, and the cardio-pyloric valve to the gastric mill: Here it is partly comminuted and the greater part of it is carried forward by the median tooth; some of it, however, is carried into the pyloric chambers, and the fluids with minute particles of food filter backward and forward from the chambers into the upper and middle canals. The food entering the middle canal is carried backward between the lateral valves to the gut. That entering the upper canal is carried through it into the intestinal cæcum. The larger particles of food are retained by the marginal bristles of the middle pyloric chamber, and the upward sweep of the bristles upon the posterior lobe of the cardio-pyloric valve carries them again to the mill. The larger portion of the food and that containing large pieces is retained in the cardiac sac, and the fluids with small particles of food percolate downward into the ventral part of the sac and are drawn by the inward and outward movements of the upper and lower ventro-lateral cardiac bars into one of the lower cardiac canals. From this canal the finest particles pass into the upper cardiac canal and through it into the mouth of the lower pyloric canal. The food passes through this canal into the lateral pouch where it is subjected to a final sifting, the most minute parts and the fluids pass down through the sieve into the liver, while the less minute particles are carried upward into the middle pyloric canal and through it into the gut.

Thus four streams of food material enter the intestine:

1. Two streams from the right and left branches of the dorsal pyloric canal. These pass outward around the posterior dorsal pyloric plate and the base of the dorsal valve into the capacious intestinal cæcum.

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2. A stream from the middle pyloric canal. This contains the rejected material from the lateral pouch and is probably formed almost wholly by that material. Bristles from five to fifteen mm. long are the only large objects which we have found in the pyloric sac. These pass through the lower chamber and the middle canal. It is possible, however, that the relaxation of the constrictor muscles may allow relatively large objects to pass through the sac.

3. A stream from the lower canal. This contains the greater part of the material brought into the pyloric sac by the upper cardiac canal. In addition, it doubtless contains a portion of the fluids which enter the pyloric sac through the upper and lower chamber and which gravitate into the canal. The coarser particles are removed from the lower canal by the sieve of the lateral pouch and are carried into the middle canal. This lower stream of food enters the lobes of the liver and is there, in part at least, digested and absorbed.

The view of the function of the stomach which is here presented is in radical disagreement with the common explanation which, without accounting for the final disposition of particles caught by the bristles of the pyloric sac, regards the sac merely as a filter. It is in slight disagreement with the admirable work of Jordan who failed to discover the cardiac canals and so was led to believe that the food stream entered the lateral pouches from the middle canal.

The Stomach of Larval Lobsters.

The stomach of lobsters of the fourth stage is like that of the adult. The less strongly calcified plates of the adult, for example, the anterior lateral, the upper intermediate, and lower intermediate cardiac bars, and the anterior dorso-lateral cardiac plate, are not recognizable in the stomachs of the earlier stages which have the adult form. The stomachs of lobsters of the first, second, and third stages (the larval stages) have the same general form and musculature (extrinsic and intrinsic) as the adult stomach. These stages are unlike the adult in the following important points:

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1. The gastrolith is not present.

2. Calcifications of the stomach wall are entirely lacking and the gastric "ossicles" are formed entirely by thickenings of chitin.

3. The dorsal cardiac plate is covered internally with sparsely arranged pairs of slender bristles and extends laterally over a large part of the areas on the sides of the stomach occupied in the adult by the gastroliths.

4. The gastric mill differs more or less fundamentally from that of the adult.

The upper and lower cardiac canals, the cardio-pyloric valve, the lower pyloric canal, and the pyloric valves, which are the most essential structures of the stomach, retain through all stages the same form and relationship.

The Stomach of the Third-Stage Lobster. (Plate VII, Fig. 11.)

The stomach of the third-stage lobster is the first of the series in which the gastric mill appears. The median tooth is comparatively small and ends in a round median knob and a pair of lateral cusps which remind one of the bilobed form of the median tooth of Astacus. The anterior dorsal and posterior dorsal pads are united in a single large lateral pad covered with backwardly directed bristles. The lateral tooth appears with its accessory cusp and with the general form of the adult tooth. The infero-lateral tooth is also present and has one large and one small cusp. The middle and lower cardiac pads have the same form as in the adult.

The ventral surface of the cardiac sac of the stomach of this, and also of the first, second, and fourth-stage lobsters, unlike that of the adult, is covered with small brushes of bristles. The simplest of these (Plate V, Fig. 5 A) consists of two parallel bristles, and the more complete brushes have three, four, or more bristles which are inserted upon a slightly crescentic ridge. The bristles which separate the upper and lower cardiac canals in the stomach of this and of the first and second stages are round and are not plumose. The cardio-

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pyloric valve is relatively higher, it lacks the posterior lobe, and it is armed with long heavy bristles.

The Stomach of the Second-Stage Lobster. (Plate IX, Fig. 15.)

The stomach of the second-stage lobster (and of the first) lacks the median, lateral, and infero-lateral teeth. In the place of the first, there is a high grooved projection from the dorsal wall of the stomach. This is very much like the cardio-pyloric valve, and we will call it the dorsal cardio-pyloric valve. Its sharp edge bears a row of long heavy serrate spines which point downward and forward. The cardio-pyloric valve is high and is similarly armed.

Between the cardio-pyloric and the dorsal cardio-pyloric valves, on each side of the stomach, there is a long (partly double) row of bristles like those of the cardio-pyloric valve, but directed inward and backward. The postero-lateral gastric muscle is inserted upon the plate of chitin which supports this row of spines.

The pyloric sac seems to be divided into a broad upper, and a lower canal. All the bristles of the sac are directed backward.

The Stomach of the First-Stage Lobster. (Plate X, Fig. 16.)

The stomach of the first-stage lobster is like that of the second-stage lobster, except that it is more nearly tubular and that it has thinner walls and fewer bristles.

In conclusion, we wish to call attention to the following facts:

1. That while the gastric mill of the adult is a grinding and crushing organ, that of the first and second-stage lobsters is a tearing and shredding organ.

2. That the lower pyloric canal, the lateral pouch, and the two cardiac canals remain throughout the whole metamorphosis essentially unchanged, and that their persistence is suggestive of their importance.

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THE GASTROLITH.

(Plate V, Fig. 5, and Plate VI, Figs. 7 and 8.)

The gastrolith is an irregular triangularly-ovate plate of lime, formed of numerous angular prisms that extend from the epithelium of the stomach wall to a plate of chitin which lines the stomach and which is secreted early in the period between two molts by the epithelium which later produces the gastrolith. Each prism appears first as a disc in the center of an irregular shallow pit in the secretory epithelium and gradually is pushed inward until it becomes a slender irregular prism whose inner and outer ends are rounded. These prisms increase in size until they fit snugly together and their rounded ends give the surfaces of the gastrolith a knobbed appearance. The gastrolith becomes quite thick before the molt (one-quarter of an inch in a lobster 11 inches long [Herrick], .5 mm. in a fourth-stage lobster). After the molt the gastrolith falls into the lumen of the stomach, is broken up, and dissolved in a few hours.

Two rival theories of the function of the gastrolith are widely known, and we will present a third theory which is a modification of the older of the two theories in accordance with some newly discovered facts. The older theory regards the gastroliths as a mass of mineral matter reserved when the old shell is cast for the hardening of the new shell. The objection offered to this theory is that the gastroliths are entirely too small to be effective for this purpose. Herrick suggests that the gastroliths are formed by the deposition of the lime absorbed from the shell in preparation for the molt and that they have no further important function than to remove a temporary excess of lime from the blood.

Thanks to the courtesy of the Commission of Inland Fisheries, we had at our disposal last summer a large number of larval lobsters of known age.

We found that the gastroliths do not appear in the first three stages, nor would we expect mineral matter in the wall of the stomach

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when absent from the skeleton generally as is the case in these larval lobsters. We found that the older fourth-stage lobsters, and also fifth-stage and older lobsters, have gastroliths. This observation is suggestive because it shows that the gastroliths appear in conjunction with the limy skeleton, since the fourth is the first stage in which the lobster has a calcareous skeleton. So far as we know, the gastroliths have not been found before in lobsters smaller than 7½ inches.

We determined to discover, if possible, the time of appearance, the rate of growth, and the rapidity of solution of the gastroliths in fourth and early fifth-stage lobsters. At the beginning of our observations for this purpose we had about 500 fourth-stage lobsters which molted from the third stage on the night of August 7 and 8.

Mr. Emmel, who obtained these lobsters for experiments on regeneration, and to whom we are indebted for the opportunity to perform this collateral experiment, isolated a number of these in bottles and fed them daily as controls. After removing a number of others for mutilation, the remaining lobsters were kept in a large receptacle and fed daily. The controls began to molt on the eighth day, but the molting of the reserve supply was delayed until the eleventh or twelfth day.

We examined the stomachs of several lobsters each day, and found that the gastroliths appeared on the fourth day—that is, the gastroliths begin to be formed in the middle, or at the beginning of the middle third, of the eight to twelve day period.

At the periphery of the ovately-triangular area, which is finally covered to a considerable thickness by the gastrolith, the calcification begins with the formation of irregular discs which are thick at the edge and thinner toward the center of the gastrolith where at first each disc is undefined, but later has a definite edge which, for a long time, is markedly thinner than the outer edge. The calcification proceeds by the thickening of the peripheral discs, by the addition of central discs, and by the gradual expansion of all the

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discs until they unite and so form the gastrolith. Each disc become one of the prisms of the gastrolith.

On the fifth and on subsequent days, the gastrolith was perceptibly thicker and more complete up to the eighth day, after which we did not observe any increase in size, although the growth probably continued.

After the molt we found that the gastroliths are dissolved within a few hours and that they may either remain *in situ* or fall into the lumen of the stomach and be broken up during the process of dissolution.

There proceeds *pari passu* with the dissolution of the gastroliths a hardening of the gastric teeth, of the mandibles, and then of the chelipeds and abdominal tergites.

As soon as the gastroliths are dissolved the lobster attacks his cast, beginning to eat the bristles and small parts and proceeding to devour more or less of the harder parts. The newly molted lobsters seldom seriously attack their sloughs within three or four hours, and generally eat the greater part of the cast within twelve or eighteen hours.

These observations do not in the least contradict those of other workers, but merely extend into a new field. They suggest the following conclusions, which are somewhat contradictory to Herrick's theory of the function of the gastrolith.

It seems improbable that the preparation for the molt, by a softening of the shell and by a corresponding deposition in the gastrolith of the excess of lime from the blood, begins at or before the middle of the period between the molts.

The hardening of the gastric teeth and mandibles before any other skeletal structures, the hardening of the chelipeds, and the subsequent eating of the shell contribute to make us believe that the gastroliths are a supply of lime reserved for the hardening of these structures so that the relatively vast supply of mineral matter in the cast and in other shells may be made available quickly for the hardening of the new shell.

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THE FOOD OF LARVAL AND YOUNG LOBSTERS.

The lobsters used for the work recorded here were taken from the large hatching bags of the Wickford Station in July and August of last year. The eggs were hatching rapidly at the time, and for this reason the lobsters in each bag were nearly of the same age. The lobsters were taken from the bags for examination at different times and on different days, so as to avoid as far as possible accidental factors.

It is the rule of the station to put a generous supply of finely chopped clams into each bag every three hours, and hence we may infer that food other than particles of clam was taken, at least in the majority of cases, in preference to the clam.

Each lot of lobsters is started in a clean bag, but organisms drawn into the bag through the bottom window seem unable or unwilling to escape, probably because the rotatory current is much stronger than the radial, outgoing, current, and soon a mass of plants and animals is crowded into the bag. The algæ and sessile diatoms attach themselves to strings of clam cuticle which is not usually eaten by the lobster, or to other fibrous matter, and sooner or later the colonies become attached to the bag and, with the tubes of annelids and amphipods, form a dense moss-like coating upon the bag. The following forms were found in the bags or upon their walls:

Acartia tonsa, very abundant.
Centropages hamatus, very abundant.
Amphipods, very abundant.
Harpacticus chelifer.
Diosaccus tenuicornis.
Balanus eburneus, very abundant at times.
Loxomacha impressa.
Decapod larvæ (crabs, shrimps ?).
Many larval and young gastropods and bivalves.
Caprella geometrica, abundant.

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Larval Polydora ciliatum and other larval worms.
Many nauplii.
Striatella.
Melosira.
Grammatophora.
Schizonema,
Non-colonial diatoms.
Young algæ, red and brown.

The stomach and intestine were dissected from each lobster, teased on a slide, and examined.

The stomachs and intestine of all lobsters except those of very young first-stage lobsters contained a number of diatoms which do not seem to be taken as food, but merely because it is impossible to avoid these omnipresent organisms. The lobsters examined were taken at random, except that very dark colored lobsters (shedders) were avoided because, as Mr. Emmel has shown, these do not eat at all for some time before the molt.

One hundred lobsters, twenty-five from each of the first four stages, were examined, and the results are presented in the appended table. In presenting this table we must mention the fact that, while particles of clam and small animals lacking hard parts may readily have failed to be recognized, the characteristic scales, tracheæ, wings, and compound eyes of insects are readily and positively recognized: moreover, the fifth limbs, spermatophores, and the antennæ of copepods are so characteristic that three species were positively identified, *i. e.*, Acartia tonsa, Centropages hamatus, and Harpacticus chelifer.

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TABLE SHOWING THE CONTENTS OF THE STOMACH OF ONE HUNDRED LARVAL AND FOURTH-STAGE LOBSTERS.

STAGE.	1st.	2d.	3d.	4th.	TOTAL.
Empty	17	3	1	7	28
With copepods	2	19	13	3	37%
Per cent. with copepods	8	76	52	12	37
Lobsters	0	1 ?	1 ?	1	3
Diatoms	Few.	All.	All.	Nearly all.	.....
Clam	0	1 ?	0	7	8
Insects	.....	.....	.....	.....	4
Chitin	.....	.....	2*	.....	.....
Unrecognizable matter	1	2	5	3	11

*One decapod larva; 1 amphipod ?.

The number of copepods found in the stomachs of the second and third-stage lobsters is very surprising, and, although it must be taken in connection with the fact that copepods swarm in the bags, it seems to indicate that these larvæ prefer live copepods to dead clams.

The absence of parts of larval lobsters is quite astonishing, in view of the well-known omnivorousness and cannibalism of lobsters, and we believe that this indicates that a lobster in the presence of abundant food will not attack his kind. In this connection one record is particularly interesting: a number of fourth-stage lobsters which had not been fed for several hours were examined and the stomachs were empty or contained masses of the cuticle of the clam which is regularly rejected by the lobster. Moreover, some of these hungry lobsters left in a finger bowl did not attack one another, *i. e.*, lobsters hungry enough to eat what they ordinarily refuse will not attack one another (unless, perhaps, one or more of the number is newly molted).

The insects eaten are found floating on the water, sometimes alive, for we saw a full grown cricket fall into a tub containing fourth-stage

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lobsters, and, despite its struggles, it was soon dragged under, dismembered, and eaten by a swarm of lobsters.

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EXPLANATION OF PLATES.

Plate I, Fig. 1. Stomach of the lobster. x 4.
" II, " 2. Median section of the stomach. x 4.
" III, " 3. Diagram showing the course of food in the stomach.
" IV, " 4. The ossicles of the stomach. x 4.
" V, " 5. Stomach of fourth-stage lobster. xiii.
" " " 6. Ventral surface of the pyloric sac. x 8.
" VI, " 7. Gastrolith of a fourth-stage lobster four days after the molt.
" VI, " 8. Gastrolith of a fourth-stage lobster eight days after the molt. x 20.
" " " 9. Section through the gastrolithic plate of a fourth-stage lobster just before the molt. x 260.
" " " 10. Cross section through the middle of the lower part of the cardiac sac. x 14.
" VII, " 11. Floor of the stomach of the third-stage lobster. x 57.
" " " 12. Roof of the stomach of a fourth-stage lobster. x 27.
" VIII, " 13. Cross section through the posterior part of the pyloric sac of a fourth-stage lobster just before the molt. x 27.
" " " 14. Stomach of a third-stage lobster. x 20.
A. Lateral tooth. x 57.
B. Median tooth. x 57.

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Plate IX, Fig. 15. Stomach of a second-stage lobster.
" X, " 16. Stomach of a first-stage lobster.

1. Cardiac ossicle or anterior dorsal cardiac plate.
1′. Posterior part of above plate.
2. Urocardiac ossicle or posterior dorsal cardiac plate.
3. The prepyloric ossicle or median tooth.
4. Pyloric ossicle or anterior dorsal pyloric plate.
5. Pterocardiac ossicle or anterior dorso-lateral cardiac plate.
6. Zygocardiac ossicle or lateral tooth.
6′. Lateral bristle plate of larval stomach.
7. Anterior dorso-lateral pyloric plate.
8. Gastrolithic bar.
9. Accessory lateral cardiac ossicle or upper intermediate cardiac bar.
10. Infero-lateral tooth.
11. Lower intermediate cardiac bar.
12. Upper ventro-lateral cardiac bar.
13. Antero-lateral cardiac bar.
14. Lower ventro-lateral cardiac bar.
15. Ventral cardiac plate.
16. Posterior intermediate cardiac bar.
17. The middle dorsal pyloric plate.
18. The posterior dorsal pyloric plate.
19. The upper intermediate pyloric plate.
20. The posterior intermediate pyloric plate.
21. The middle intermediate pyloric plate.
22. The lower intermediate pyloric plate.
23. The ventral pyloric plate.
24. The posterior lateral intermediate pyloric plate.

A′ The lower lateral dilator.
A.D. Lower anterior dilator.
A.D.′ Anterior dilator.
A.P. Posterior dorsal pad.
C. Lateral pyloric pouch.
C.M. Intestinal cæcum.
C.C. Partition of bristles between the upper and lower cardiac canals.
C.P. Cardio-pyloric valve.
C.P.′ The dorsal cardio-pyloric valve.
D. Dorsal pyloric valve.
D.C. The upper pyloric canal.
D.P. Posterior dorsal pad.

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E. Œsophagus.
E′. The median valve of the œsophagus.
G. Gastrolith.
G′. The gastrolithic epithelium.
H. The hepatic duct.
I. The intestine.
L. Lateral pyloric valve.
L.C. Lower pyloric chamber.
L.D. Lateral dilator.
L.G. Postero-lateral gastric muscle.
L.P. Lower cardiac pad.
L.P′. Lower pyloric pad.
L.T. Lateral tooth.
M. Upper cardiac canal.
M.C. Middle pyloric canal.
M.P. Middle cardiac pad.
N. Lower cardiac canal.
P.G. Posterior gastric muscle.
Q. Posterior opening of the upper cardiac canal.
R. Upper cardiac constrictor.
S. Middle cardiac constrictor.
S.D. Superior dilator.
T. Lower cardiac constrictor.
U.P. Upper lateral cardiac pad.
U.P′. Upper pyloric pad.
V. Ventral pyloric valve.
V′. Septum between middle pyloric and lower pyloric canals.
V.C. Lower pyloric canal.
V.C′. Ventral portion of the lower pyloric canal.
V.D. Ventral dilator.
V.E. Vascular epithelium.
W. Connective tissue wall of stomach.
X. Upper pyloric constrictor.
Y. Lower pyloric constrictor.
Z. Lateral pyloric constrictor.

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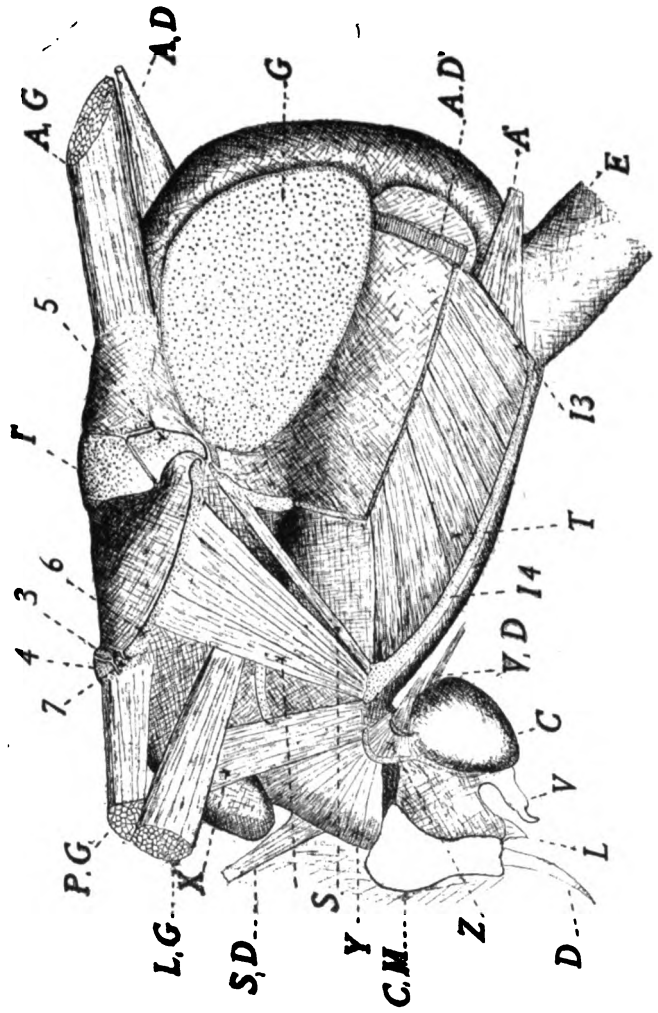

PLATE I.

Fig. 1.—Stomach of an adult lobster. x 4.

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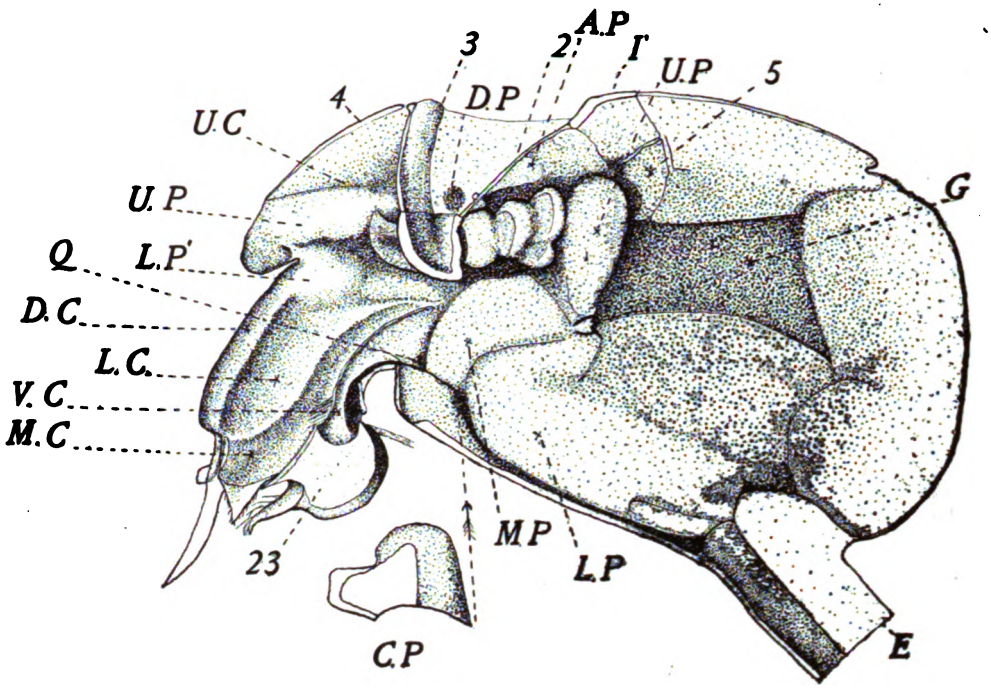

PLATE II.

Fig. 2.—Interior of the stomach of the adult. x 4.

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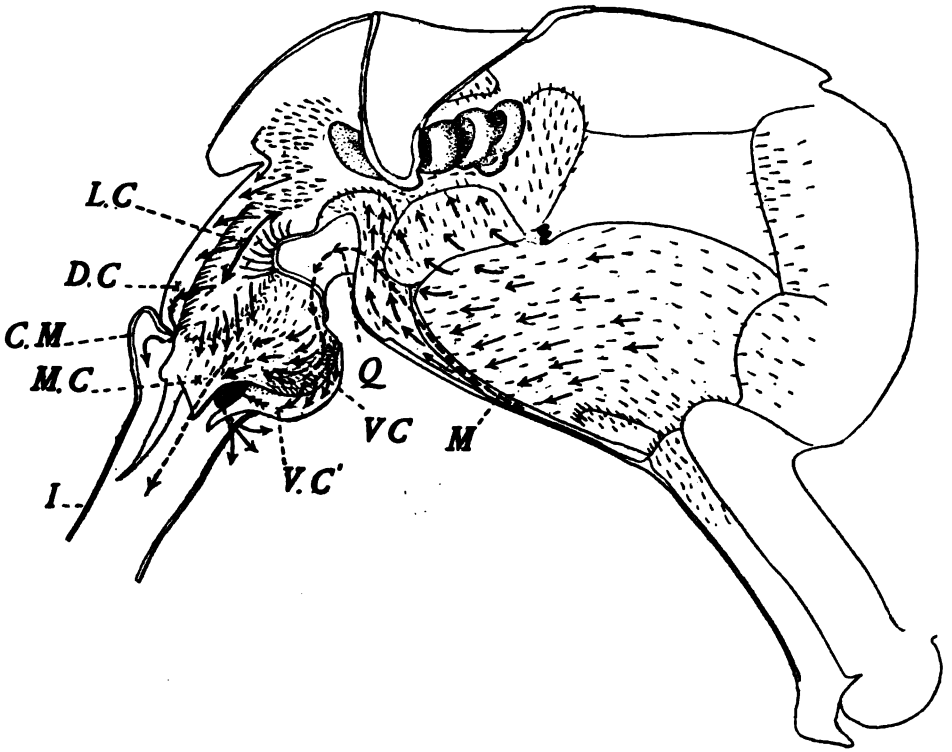

PLATE III.

Fig. 3.—Diagram showing the course of food in the stomach of the lobster.

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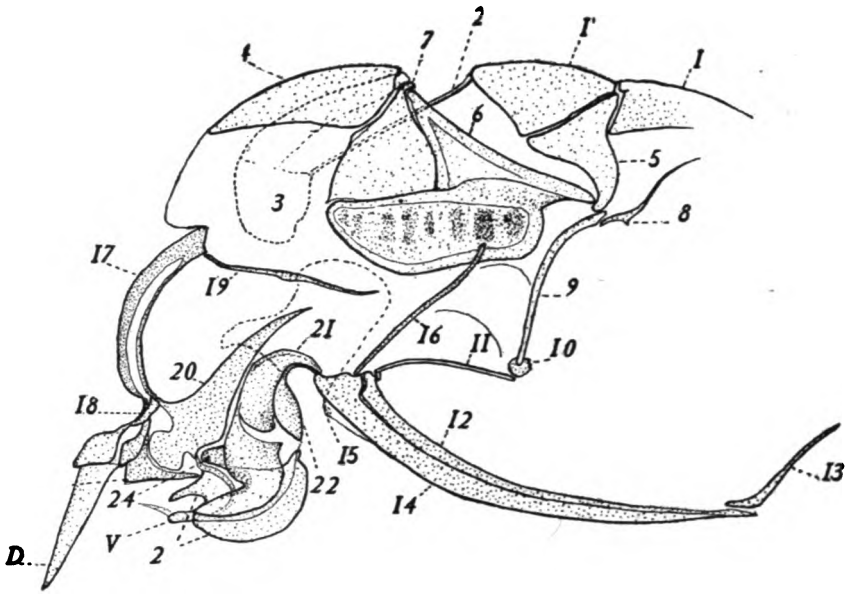

PLATE IV.

Fig. 4.—Diagram showing the ossicles of the stomach of the lobster. x 4.

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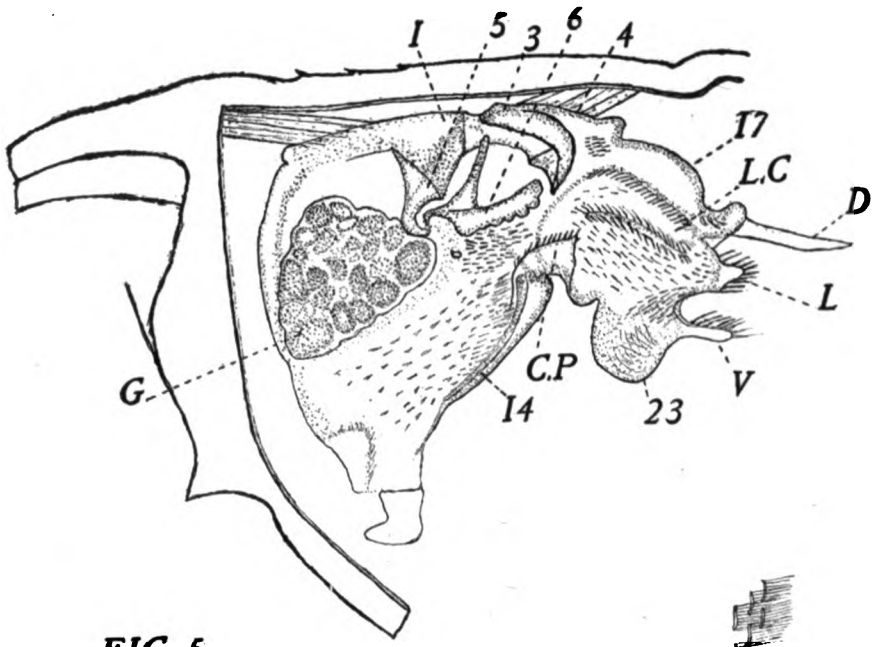

FIG. 5

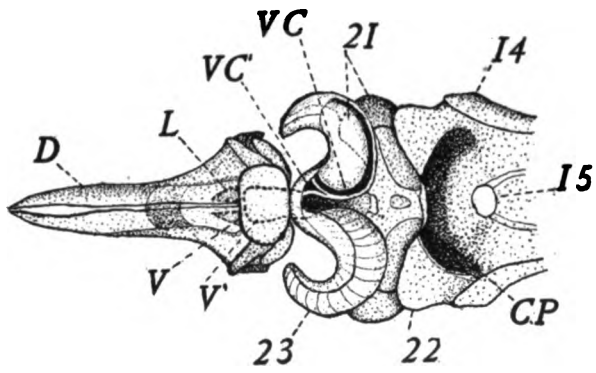

FIG. 6

PLATE V.

Fig. 5.—Stomach of a fourth-stage lobster. x 11.
Fig. 6.—Ventral surface of the cardiac portion of an adult lobster. x 6.

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FIG. 7

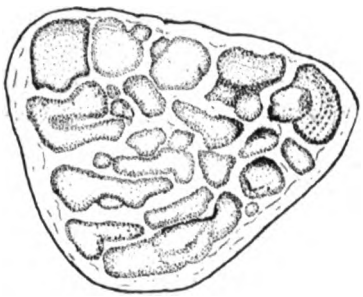

FIG. 8

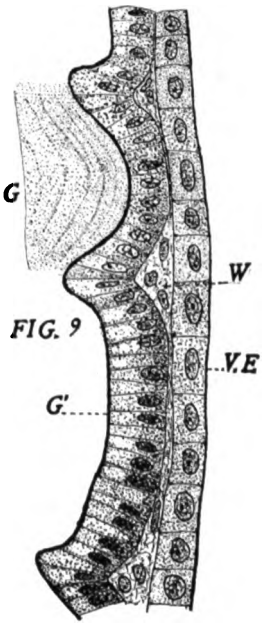

FIG. 9

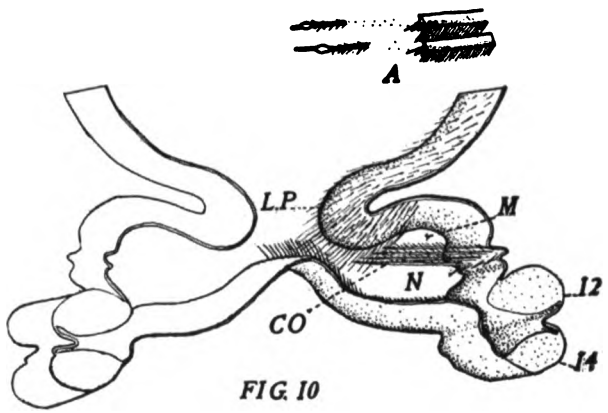

FIG. 10

PLATE VI.

Fig. 7.—Gastrolith of a fourth-stage lobster, five days after the molt. x 20.

Fig. 8.—Gastrolith of a fourth-stage lobster eight days after the molt.

Fig. 9.—Section through the gastrolithic plate of a fourth-stage lobster killed a short time before the molt to the fifth stage. x 260.

Fig. 10.—Section through the base of the cardiac portion of the stomach of an adult lobster, a short distance in front of the cardio-pyloric valve. x 6.

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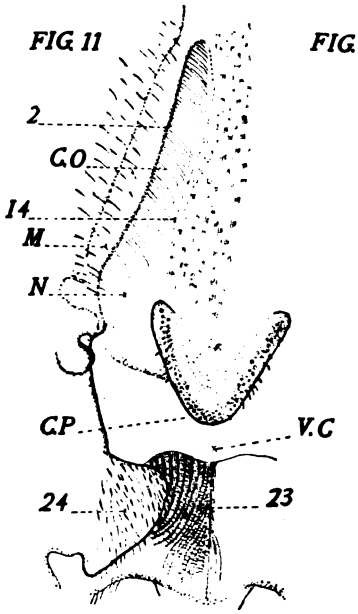

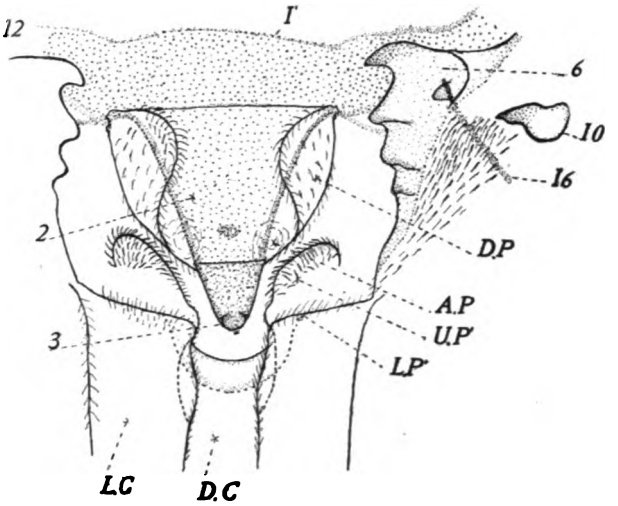

PLATE VII.

Fig. 11.—Lower wall of the stomach of a third-stage lobster. x 57.
Fig. 12.—Upper wall of the stomach of a fourth-stage lobster x 27

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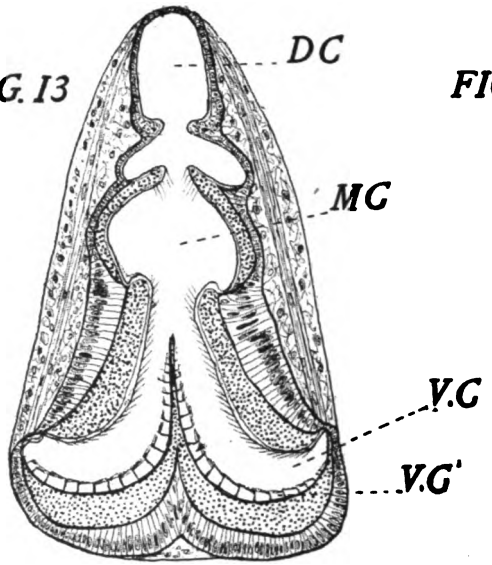

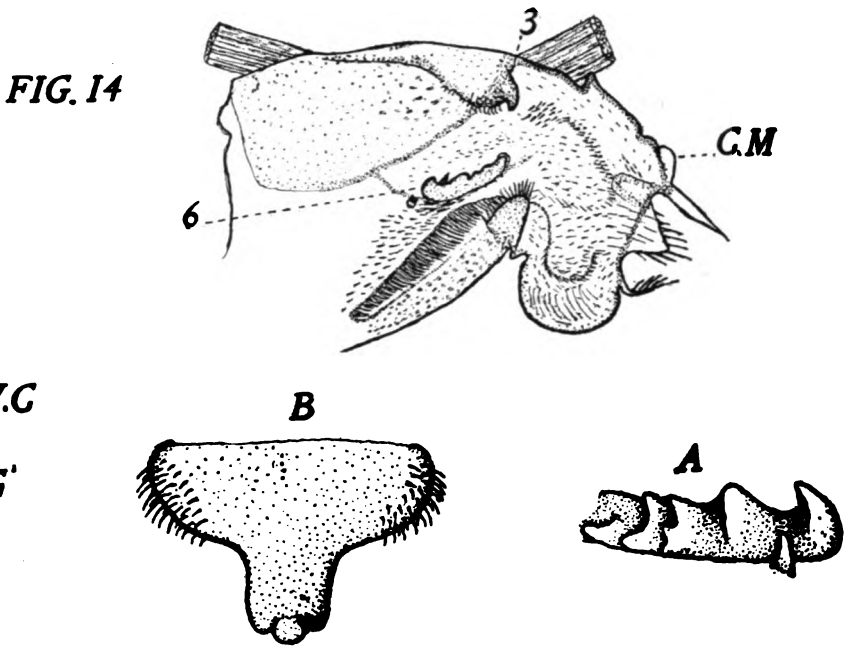

PLATE VIII.

Fig. 13.—Transverse section through the pyloric portion of a fourth-stage lobster, a short time before the molt to the fifth stage. x 27.
Fig. 14.—Stomach of a third-stage lobster. x 40. A. Median tooth. x 115. B. Latera tooth. x 115.

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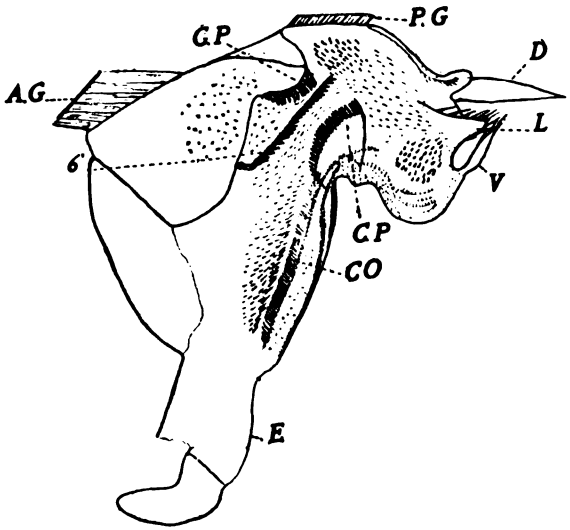

PLATE IX.

Fig. 15.—Stomach of a second-stage lobster. x 44.

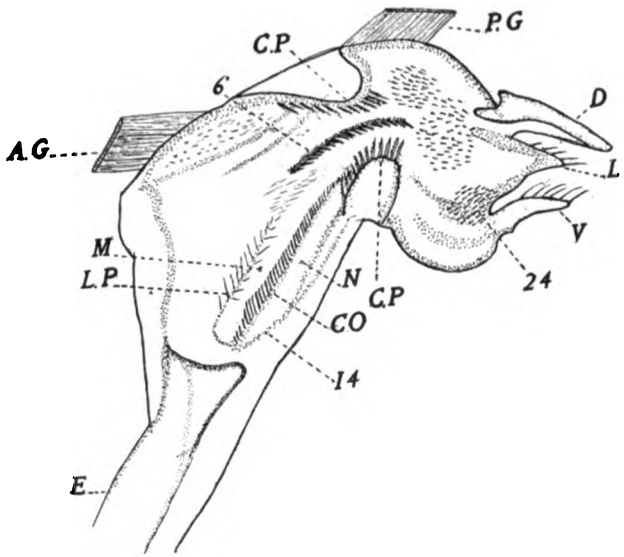

PLATE X.

Fig. 16.—Stomach of a first-stage lobster. x 57.

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CONTINUED OBSERVATIONS ON SOME INFLUENCES OF LIGHT UPON THE LARVAL AND EARLY ADOLESCENT STAGES OF THE AMERICAN LOBSTER.

CONTINUED REPORT.

BY PHILIP B. HADLEY.

BROWN UNIVERSITY, PROVIDENCE, R. I.

The advantage of investigating the influences of light upon the lobster in the early stages of development has been mentioned by the writer in an earlier report.*

The present paper is presented with the purpose of giving the results of continued investigation on the reactions of the larval and early adolescent lobsters to light; and with the view of applying the facts thereby gained to the explanation of certain phases of the behavior of the young lobsters when they are under natural conditions of environment.

This study of the reaction to light naturally divides itself into two parts: First, the *reactions proper* (positive or negative to the intensity or to the directive influence of the light); secondly, what may be called the *mechanics of reaction.* The first of these two heads is subdivided into (1) the study of the photopathic reactions (the reactions to the intensity of light), and (2) the phototactic reactions (the reaction to the directive influence of the light rays). We may first limit our discussion to a consideration of the reactions proper, and then turn our attention to the second phase of the question, the mechanics of reaction.

*Report of the Rhode Island Commission of Inland Fisheries for 1905.

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I. The Reactions.

Reactions to Light.—In the discussion of this problem it will be found of advantage not to separate our considerations of photopathy and phototaxis. It is still a problem among students of animal behavior, whether these two kinds of response are actually different, or are one and the same form of reaction. Many facts demonstrate that they are really different, and that, although the phototactic reactions do depend upon a certain optimum intensity of light, still the reaction of organisms may be brought about sometimes by one and sometimes by the other of these two factors. Indeed we shall find in the case of the larval lobsters, that they may be either photopathic or phototactic; moreover, that positive photopathy is not necessarily associated with positive phototaxis, nor negative photopathy with negative phototaxis, but that one form of reaction may be positive, while the other is at the same time negative, and *vice versa*.

Yet, in view of the differences of opinion regarding what constitutes a phototactic and what a photopathic reaction, it is perhaps advisable to state more definitely just what meaning is given these terms as they are used in the following pages. In other words, how shall we differentiate between the intensity of light and the directive influence of the light rays. It is hardly to be doubted that the direction, *per se*, of the rays has no influence upon the movements of organisms, other than that it determines what side of the organism shall receive light of greater intensity. For this reason in the present article, the term *directive influence of light* has no other meaning than that the light coming from a certain direction strikes the eyes of the organism and, by virtue of the unequal illumination, brings about a constant form of response manifested by the turning of the organism in one direction or another. In the following pages, then, a phototactic response (which necessarily involves both a body orientation and a progressive orientation) will be conceived of as *a reaction in which the organism tends to place the longitudinal axis of the body in a*

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certain definite relation to the direction of the rays of light, and to move toward or away from source of those rays.

But what, then, is the nature of the so-called photopathic reaction? It seems probable that, as Yerkes* has suggested, a photopathic reaction is one in which an organism "selects a particular intensity of light and confines its movements to the region illuminated by that intensity." This type of reaction constitutes what will be considered in the following pages as the photopathic response, whether or not it is brought about through a series of phototactic reactions as Yerkes believed to be the case for *Daphnia*. Thus, to restate, it will be assumed that *a photopathic reaction is one in which an organism, without previous assumption of a body orientation to the direction of the rays of light, selects a region of a certain optimal light intensity.* It is hoped that continued investigations may throw further light on the problem of the manner in which light brings about the progressive orientation in one direction or another; also on the method by which the reaction, here assumed to be photopathic, is produced (if so) without the previous assumption of a body orientation to the direction of the light rays.

It seems extremely probable that the behavior of the larval and early adolescent stages of the lobster is determined in a large measure by both kinds of response. Indeed the relation between phototaxis and photopathy appears to be a very intimate one, and we can not study one without taking the other into careful consideration. Therefore in the following pages it will be found advantageous to examine both the photopathic and the phototactic reactions in more or less close connection, that we may understand, not only their individual and separate, but also their mutual and combined, effect upon the behavior of the larval lobsters.

Method and Apparatus.—The experiments which are to be reported involved the use of the apparatus mentioned below: (1) Cylindrical museum jars, 20 to 25 centimeters in diameter. These were used in

*Reactions of Daphnia pulex to Light and Heat, reprinted from the Mark Anniversary Volume, 1903, Article XVIII, pp. 359–377.

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studying the reaction of large groups of larvæ which were placed therein. The conditions of light were modified either by using screens of black paper over one side of the jars, or by placing the jars on a black or a white background. (2) Glass tubes. These were for the most part straight glass tubes sealed with glass at each end. These varied in length from 18 to 40 centimeters, and in diameter from 2 to 4 centimeters. Other tubes were Y-shaped and were constructed of glass tubing 3 centimeters in diameter. The horns were 8, the stem 10, centimeters in length. The straight variety of tube was used in various ways to test both the photopathic and the phototactic reactions, under different conditions of light, background, etc. The Y-tubes were used for a similar purpose and also to test the reaction to different intensities of light. In this case sometimes colored glass plates of different intensities were laid over the horns, and sometimes the horns were laid over backgrounds of black or white. It was under the conditions last mentioned that some of the relations of photopathy to phototaxis were best studied. (3) Wooden boxes supplied with glass bottoms, glass slides, or glass ends. These boxes were 12 by 6 by 6 inches, painted black on the inside, and fitted with light-tight covers.

They also were used for testing the photopathic and phototactic reactions either separately or in combination. In the latter case the glass-bottomed box was set up over a hollow tube or shaft, through which the light was reflected from a mirror, or from a plane, white surface at the bottom of the shaft. Just beneath the glass bottom of the box was ranged a linear series of monochromatic glass plates,—red, orange, green, and blue, by means of which the intensity of light entering the bottom of the box could be regulated. But light could also enter the box through the end windows, and pass through the box lengthwise. By this arrangement the larvæ, when they were placed in the box, could be subjected to two light influences: One the light from below; the other, the horizontal rays entering the end window of the box. By these conditions of experiment it was possible to secure reactions both to the intensity and to the directive

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influence of the light rays, and to learn which reaction was more instrumental in determining the final reaction of the larvæ. (4) The last piece of apparatus to be mentioned was a rectangular glass box 6 by 3 by 2 inches. This was used especially in studying the mechanics of reaction in the case of isolated individuals. For illumination, daylight (reduced to varying intensities by graded wedge screens of colored gelatin, or colored glass plates) was used in most of the experiments. In some cases, however, acetylene lanterns were employed, or, in a few instances, a brilliant oil burner.

Experiments involving the use of the various pieces of apparatus mentioned above were performed with young lobsters in the first five stages. Instead of finding a uniform and constant type of reaction for all stages and all individuals, it appeared that the reactions underwent a great modification, not only from stage to stage, but even during a single stage-period. It will not be attempted here to describe in detail all the reactions of the larval lobsters. We shall mention only the general results of a long series of experiments, and attempt to present a clear view of the changes in reaction to light which accompany the metamorphosis of the lobster as it passes on from stage to stage.

First Larval Stage.

When the photopathic and phototactic reactions of the first-stage larvæ were first tested, they were both found to be positive; that is to say, the first-stage larva appeared both to "choose" the lights of greater intensity, and to move in the direction of the light rays (in case of the phototactic reaction) toward their source. No phase of their behavior could be more striking than the definiteness of these two forms of reaction to light. And it may be said here that in no period in the later life of the larvæ is there manifested a type of response so universally invariable as the reaction given by the first-stage larvæ within the first few hours after hatching.

This universal positive response, both to the intensity and to the

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directive influence of the light rays, remained unchanged, under nearly all degrees of illumination, for the first 24 to 36 hours of the lobsters' existence. After this period of time, however, it was usually observed that the first signs of a negative reaction began to appear; and that, by the time the larvæ were two days old, in the majority of instances the negative phototactic reaction had assumed prominence in determining the behavior of the first-stage larvæ. Even at this time, however, whether the reaction was positive or negative appeared to depend very largely upon the intensity of the light to which the larvæ were submitted. It very frequently happened that larvæ which gave a very definite *positive* reaction in light of low intensity, would manifest just as definite a *negative* reaction when the intensity of the light was augmented beyond a certain point. The negative reaction to daylight was usually maintained by the first-stage larvæ until the approach of the first molting period.

At the approach of the molting period, which usually occurs on the fourth or fifth day of the first stage-period, a return of the positive reaction that had characterized the behavior of the larvæ during the first two days after hatching was observed. This positive reaction began by a decreasing sensitiveness to lights of greater intensity, and culminated, during the few hours before the molting, in a striking positive reaction even to lights of great intensity. During this change in the phototactic reaction, the photopathic reaction remained invariably positive.

To summarize the reactions of the first-stage larvæ it may be said that: (1) The photopathic reaction remained positive throughout the stage. (2) The phototactic reaction of the larvæ, aged about 2 days, was definitely positive; but after 2 days it changed to negative, only to return to the positive reaction as the molting period with the second stage approached. (3) The phototactic reaction of first-stage larvæ invariably overcame the photopathic reaction, and although any phototactic reaction requires a certain optimum intensity of light, the general behavior of the first-stage larvæ is

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probably determined more by the directive influence of the light rays than by the light intensity.

Second Larval Stage.

Unlike the first-stage larvæ just after hatching, the second-stage larvæ, just after molting, were found to be more frequently negative than positive in their phototactic reaction. The negative phototactic reaction, as in the case of the first-stage larvæ, was maintained until toward the last of the second stage-period. As the time of molting to the third stage approached, the phototactic reaction commonly changed again to positive. Throughout the second stage-period the photopathic response, as was the case in the first stage-period, remained positive. Generally speaking, the reactions of the larvæ of the second stage were not as definite and invariable as the reactions of the first-stage larvæ. In the second stage-period phototaxis still appeared to retain the dominating influence over the behavior of the larvæ; for they could be made at any time to move from a region of less into a region of greater light intensity in order to travel, in the direction of the rays, either to or from their source.

Third-Stage Larvæ.

Regarding the behavior of the third-stage larvæ, it is sufficient to say that, in general, the reactions were similar to those of the second stage. When newly molted from the second stage, these lobsters commonly manifested a negative phototactic reaction, and this reaction endured until toward the end of the third stage-period. Then the reaction usually became definitely positive, even under light of great intensity; and continued so until the larvæ had again molted and entered the fourth stage. During this third stage-period the photopathic reactions, as was the rule for larvæ in the first and second stages, remained constantly positive. Thus it was again demonstrated that, in certain periods of the larval stages at least, a positive photopathic might accompany a negative phototactic

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reaction. As was also the case in the previous stages, the phototactic response appeared to be the dominating factor in determining the behavior of the larvæ in the third stage, although the reactions of the third-stage larvæ were, as a rule, much less definite than the responses of larvæ in the earlier stages.

Fourth-Stage Lobsters.

In the molt from the third to the fourth stage occur the most important changes that the young lobster undergoes in the whole course of his life. These changes appertain not alone to modification in the body form, morphology, and function of many of the appendages, but also to points of internal structure as well. Among the more general features of the metamorphosis we may enumerate: (1) The loss, in the molt from the third stage, of all functional swimming branches on the thoracic appendages. (2) The great development of the chelipeds and of the first and second pairs of antennæ. (3) The accession of functioning swimmerets on the underside of the second, third, fourth, and fifth abdominal segments. (4) A great change in the body form,—and consequently, in the manner of swimming.

In view of the importance of these changes which take place when the lobster enters the fourth stage, it is reasonable to expect that they are to have some influence on the behavior of the fourth-stage lobster. And we shall find that, just as a certain change in the nature of the response was shown during the progress of each of the earlier stages, so in the fourth stage, but for different reasons, there is a gradual modification of the manner of reaction as the lobster passes on through the fourth stage and enters the fifth.

The phototactic reaction after the molt from the third stage was found to be negative. We have observed that, in the earlier stages, this negative reaction changed to positive as the molting period to the next stage approached. This was not found to be the case in the fourth-stage larvæ; for, as the stage-period advanced, the photo-

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tactic reaction, instead of changing to positive, became only the more strongly negative. The photopathic reaction, on the other hand, which, in the earlier stages, remained positive throughout, was found in the fourth stage-period to undergo a change. While the early fourth-stage lobsters manifested a positive phototactic reaction, this gave place, during the advancing fourth stage-period, to a negative reaction to the intensity of light. This reaction was invariably manifested by the late fourth-stage larvæ.

One other point of interest in the behavior of the fourth-stage lobster may be noted in the relation between the phototactic and photopathic reactions. We have observed in the earlier stages that the phototactic reaction was dominant over the photopathic, and was largely the controlling factor in determining the behavior. In the fourth-stage lobsters the condition of affairs appeared to be somewhat different. It was found that the photophatic reactions had assumed a greater stability and were not so easily overcome by the phototactic; and, as will be shown subsequently, the photopathic reaction assumed a still greater importance in determining the behavior of the fifth-stage lobster.

Fifth-Stage Lobsters.

The body form of this stage is very similar to that of the fourth-stage larvæ, and we might therefore expect similar types of reaction. But we shall see that there are differences in behavior, and in this case the points of difference are of such a nature that we can not attribute them either wholly or in part to changes in body form or in the swimming appendages. But it is undoubtedly the consequence of modifications in the body-processes of the lobsters themselves, and may well be ascribed, perhaps, to changes that have resulted from the cumulative stimulation during the earlier life of the lobsters. Generally speaking, we may say that the reactions of the fifth-stage lobsters were typical of the adult form, and were chiefly characterized by the light-shunning instinct. This form of behavior could be

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readily observed by merely watching the lobsters in their confinement cars, but for the sake of certainty the fifth-stage lobsters were submitted to the same form of experiment to which the larvæ of the earlier stages were submitted. The type of reaction presented in the *early* fifth stage-period was found to differ in no way from the behavior of the *late* fifth stage-period; and both were characteristic of the behavior of lobsters in all later stages. To the last subject the writer hopes to give his attention later. Regarding the phototactic reactions of the fifth-stage lobsters, it may be said that they were invariably negative, and differed in no way from the phototactic reaction of the fourth-stage larvæ,—save that in the former case the reactions were more definite and more strongly manifested.

Unlike the photopathic response in the fourth-stage larvæ, these reactions in the fifth stage were invariably negative from the beginning of the stage to the end of it. The photopathic reaction of the fifth-stage lobsters, moreover, was even more stable than in the fourth stage, and it was with some difficulty that a group of fifth-stage lobsters could be driven, by virtue of their negative phototactic response, from a region of lesser to a region of greater light intensity. It will be recalled that in the early larval stages the reactions to intensity were invariably subservient to the reactions determined by the directive influence of the light rays.

Phototaxis Leading to Fatal Results.—It was interesting to note that the negative phototactic reactions of lobsters in the fourth and fifth stages might often be of so extreme a nature that injury to the larvæ resulted. In other words, it was frequently observed that, if the box in which the larvæ were contained slanted gradually, leaving at one end a region which the salt water did not cover, the lobsters might be so driven, by the influence of the light rays coming from the opposite end of the box, that, as a result of their negative reaction, they would be "stranded" so to speak, on the "shore." Here they would invariably remain, and in this position they would have perished, rather than turn to face the light and travel into deeper

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water, had they not been returned to the water at the end of each successive test.

Contact-irritability.—In the preceding section we have considered merely the phototactic and the photopathic reactions, together with some points of their inter-relation. It may now be of interest to examine briefly that response of the lobsters to solid portions of their immediate physical environment which, for the present lack of a better term, we may call contact-irritability.

It might reasonably be imagined that the loss of the swimming branches (exopodites) of the thoracic appendages, which takes place with the entrance to the fourth stage, would at once determine a very radical change in the habits of the lobster larvæ from that time. We might surmise that the larvæ would at once abandon their pelagic manner of existence and enter at once upon a more sedentary life among the rocks and weeds of the sea bottom. But this is by no means the case, for never in the life history of the lobster do we find them more able and persistent "swimmers" than in the fourth stage of their existence, and just after the loss of those very accessories, without which swimming would have been impossible for them in any of the earlier stages. This energetic surface swimming of the fourth-stage larvæ was evident from many observations. One such case is especially noteworthy. In July a steam launch, of which the captain had lost control, rammed one of the floats which suspended six large hatching bags containing lobsters in various stages. As a result of this accident a very large number of fourth-stage larvæ were suddenly liberated in the water about the hatchery. When order had been restored an attempt was made to recover the lost lobsters, and as a result, over five hundred, which were swimming actively at the surface of the water (fortunately smooth), were picked up by means of scrim nets.

When we come to examine the behavior of the fifth-stage lobster under natural conditions, we find very different action. When a number of fifth-stage larvæ were cast loose in the open water, it was a most interesting sight to observe them swim for a moment,

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then, turning head down, disappear for good in the deeper water,—a great contrast to the behavior of the fourth-stage larvæ under similar conditions.

One other set of observations may be mentioned, and these refer to the burrowing instinct of the larval lobsters. When early fourth-stage larvæ were transferred to glass dishes, on the bottom of which a layer of sand or gravel and a few broken shells had been spread, the larvæ at first gave no heed to these conditions, but for some days continued to swim as persistently as ever. Finally, however (usually within two or three days after the larvæ had been placed in the dish), the lobsters began to plough through the sand, especially near the rim of the container, and to construct burrows for themselves beneath shells, stones, or other objects. In the case of the fifth-stage lobsters, on the other hand, when they were introduced into the dishes containing sand, gravel, and shells, they commenced this burrowing at once; and when the burrows were completed the lobsters showed a much greater tendency to remain therein than did the fourth-stage larvæ under similar conditions.

The question now arises, what conditions or factors cause these various types of behavior which have been mentioned above: The energetic surface swimming of the fourth-stage larvæ, or the bottom-seeking and burrowing habit of the late fourth-stage and the fifth-stage lobsters? Are these reactions to be explained as phototropic reactions, geotropic reactions, response to contact, or do all three of these, and perhaps still other circumstances, unite in determining the final result? We are not yet prepared to venture an answer to these queries. Some experiments were performed, however, in which the choice between a clear and a sand-covered area was offered to lobsters in the fourth and fifth stages, and methods were introduced whereby the lobsters which had gathered in either of these regions could be imprisoned there until they were counted. The results of these tests made it apparent that the *early* fourth-stage lobsters showed but slight, if any, preference for the sanded area. But when this experiment was repeated with the *late* fourth-stage

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larvæ it usually appeared that a greater number would remain in the sanded region. In the case of the fifth-stage lobsters, moreover, a very definite tendency to remain in contact with the sand, to burrow in it and not to be dislodged, was most clearly manifested.

Reactions Determined by Hunger.—Many students of animal behavior have learned that the condition of hunger is able to greatly modify the reactions of organisms to many stimuli, especially to food. Generally speaking, it has been found that hunger prevents the manifestation of the normal type of reaction. The effect of hunger upon certain stages of *Homarus* is no exception to this rule. In this instance, however, the condition of hunger appears to be instrumental in modifying the reactions of the lobster only in the fourth and later stages. To a certain degree this has an explanation in the fact that the larval lobsters of the first three stages are not able to direct their own activity in a definite direction, as toward food; and it is not until this fourth stage is reached that the lobster is at all the master of its own progress. It was learned in the early part of the investigations on the behavior of the fourth-stage lobsters that, if any study of their reactions to light was to be made, the lobsters must first be fed—and well fed. For, if such was not the case, the tendency to eat one another usually annihilated any possible manifestation of a response to the influences of light. Even if the condition of hunger did not excite these extreme cannibalistic instincts, it usually produced a manifestation of unrest which made any results, in the way of numerical counts, impossible. As has been shown, the fourth stage-period—at least in the early part—is the "swimming period" of the lobster's existence. It is not until the latter part of the fourth stage-period that the lobster, under proper conditions of environment, goes to the bottom and begins to burrow in the sand or under the bits of shell. Now it was found that the condition of hunger appeared to have a very definite influence upon the time at which the "burrowing instinct" was first "liberated." To ascertain more fully regarding this point several experiments were performed, of which the following is a fair example of all:

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Influence of Hunger in "Burrowing".—On August 5, about thirty early fourth-stage larvæ were taken from one of the confinement bags. They did not show much evidence of hunger, and were therefore isolated for forty-eight hours without food. At the expiration of this time they all proved to be very hungry. Now two groups of five lobsters each were taken from this lot and each group was placed in a 14 centimeter crystallization dish, the bottom of which was covered with sand, gravel, and shells. Immediately after this one group of lobsters was fed with chopped clam meat, while the other group was left hungry. The dishes were placed on the laboratory table, and records were taken frequently to determine when the burrowing would be first manifested, and in which group. For some little time both groups swam more or less constantly near the surface. Further records may be presented as follows:

Time.	Group Fed.	Group Unfed.
Aug. 7, 10 A. M.	1 larva burrowed	5 larvæ swimming or crawling.
" 7, 11.30 A. M.	2 larvæ "	5 " " " "
" 7, 3.30 P. M.	3 " "	5 " " " "
" 9, 9 A. M.	4 " "	5 " " " "
" 9, 9 A. M.	4 " "	3 " burrowed.*
" 6, 6 P. M.	4 " "	4 " " "

*At this point one of the five lobsters was killed and eaten by the others, three of which immediately burrowed.

These results appear to show that while hunger may postpone the liberation of the burrowing instinct, satiety appears to favor its early appearance. One other experiment, the converse of the previous case, may be introduced:

Influence of Food Stimulus upon Surface Swimming in the Fourth-stage Larvæ.—In this case about twenty larvæ in the middle and late fourth stage were placed in a 25 centimeter glass jar filled with salt water to a depth of four inches. These lobsters were kept without food until they showed evident signs of hunger. All the larvæ re-

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mained on the clean bottom of the jar, over which they crawled or lightly swam. Occasionally one would come to the surface, only to leave it again for the bottom of the jar. Now a long pipette was partly filled with fresh clam juice, and the outside of it carefully washed to remove all possible trace of clam odor from the surface of the tube. When the lobsters were resting quietly the point of the pipette was slowly lowered to the very bottom of the jar, where a few drops of clam juice were liberated in the vicinity of the resting fourth-stage lobsters. Within a few seconds all the larvæ in that region rose to the surface of the water, and swam wildly about for a variable length of time. Then they again went to the bottom of the jar. Here they either rested permanently, or, if a sufficient amount of the clam juice remained near the bottom of the jar, the larvæ, apparently restimulated, displayed further surface swimming. These same tests were tried on the fifth-stage lobsters, but, although the clam juice might excite them to more active crawling over the bottom of the jar, it never produced the active surface swimming characteristic of the fourth-stage lobsters under similar conditions of stimulation. These observations have received further support from facts which the writer has learned from V. E. Emmel. It appeared in his experiments that the hungry lobsters, when stimulated by a piece of clam meat dropped into their confinement bottles, would not remain on the bottom to enjoy the morsel, but would rise to the surface and manifest active swimming for some moments. These few observations demonstrate clearly that the lobsters, at least of a certain age, respond very definitely to certain kinds of food stimuli. To what extent this kind of reaction may be responsible for the surface swimming so characteristic of the early fourth-stage lobster under natural conditions, it is difficult to say. It is not improbable, however, that, after the fast that usually accompanies the approach of the third molting process, the sense of hunger which characterizes the early fourth-stage lobster may be in part the cause of the surface swimming, although as has been shown in previous pages the reaction to light is no doubt an influential factor.

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*Reactions to the Electric Current.**—The study of the reactions of the lobster larvæ to the electric current was a point of incidental interest during the progress of the experiments on the reactions to light. The current used was that from two to four dry cells, and the exact strength, in the circuit, was never known. The long-applied constant current was not employed, but a more or less interrupted current, the flow of which was seldom permitted for more than four to six seconds. The results are therefore qualitative rather than quantitative. The larvæ were imprisoned between two glass slides placed vertically, parallel to each other, and about 2.5 centimeters apart in a crystallization dish 10 centimeters in diameter. They were thus confined in a rectangular area formed by the glass slides and the sides of the dish, and between the two electrodes. These were made of zinc strips wound with cotton and were hung over the rim of the dish so that they dipped about 1.5 centimeters into the salt water. The current was made, broken, or reversed by a rocking key. Usually the reactions of one larva were tested at a time.

The results of the experiments may be briefly stated as follows: (1) The larval lobsters of all ages reacted very definitely to the electric current by gathering at the anode. (2) Reaction to the current took place only when the tail was directed to the anode, or when the head was directed to the cathode and the back obliquely to the anode. (3) The reaction took place as a result of rapid contraction and expansions of the abdomen. By this movement the larvæ were impelled backward to the anode. This method differed from the mechanics of the reaction to light. (4) Although the ascending electric current, as used, caused a progressive orientation to the anode if the longitudinal axis of the larva came into proper relation with the lines of the current, no current was apparently ever itself instrumental in producing body orientation. (5) The excitations arose and were strongest at the anode. Therefore, the reaction of the lobster larvæ to the galvanic current does not appear

*The writer expects to publish soon the detailed results of his obeervations on the galvanotatic reactions of the larval lobsters.

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to conform to the main requirements of Pflüger's law of polar stimulation and contraction.

II. The Mechanism of Reaction.

We now come to a consideration of the mechanism of reaction on the part of the lobster larvæ; and we may express the point of our inquiry in the following terms: *By what means, or by what movements of the larvæ are the positive or negative orientations accomplished?*

In our effort to answer this question we shall for the present attempt to avoid, so far as possible, all those considerations which deal directly with the *ultimate* causes of orientation; in other words, we shall limit ourselves to the observation of the actual movement of the body, or of certain parts of the body, of individual larvæ; and attempt to show what relation exists between these movements and the internal or external factors which appear to determine them. Thus it is merely a matter of convenience that we divide these conditions which may determine or modify the behavior of the larvæ into the *internal* and the *external* factors. Among the former we may include the cumulative effect of all previously acting stimuli; among the latter we may consider the conditions of environment which act directly upon the organism to cause an immediate response. It is the effect of the latter in producing certain kinds of movements of the larvæ as a whole, or of their parts, that we are now ready to consider. First, however, we must establish some points regarding the natural behavior of the larvæ when the reaction to the external stimuli is at the minimum.

The Normal Behavior of the Larvæ.—Obviously enough we should not be able to recognize certain forms of reaction in the lobster larvæ, did we not first have some knowledge regarding what we may call the normal type of behavior. There will be recognized a certain point of difficulty in establishing this basis. What do we mean by natural or normal behavior? Whatever answer may be given to this question where the higher animals or man are concerned, for our

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present purpose we may conceive of normal behavior as that type of action which is present when the response to exaggerated or unusual conditions of stimulation is at its minimum. In view of the fact that *swimming* constitutes the chief activity of the larval lobsters, our question resolves itself into the following: *What is the nature of the normal swimming?*

When one first observes the behavior of individual larvæ among the thousands contained in the large hatching bags, no difference is evident in the swimming of those in the first three stages. In all instances the back of the larva is, for the most part, uppermost, the abdomen bent under and downward at an angle of about 60 degrees from the longitudinal axis of the cephalo-thorax, which in turn is inclined at about 30 degrees from the horizontal plane. In daylight this position may occasionally be maintained without modification for several minutes, but the equilibrium is frequently disturbed by other body movements, which, upon superficial observation, appear to be of a most diverse and ill-ordered nature. There are leanings, turnings, fallings, somersaults, revolutions, and rotations, which follow one another in no apparently definite sequence, and which disturb the general equilibrium either greatly or slightly as the case may be.

Whether the balanced equilibrium, the devious rotations, or other activities, be in effect, the exopodites, or swimming attachments of the thoracic appendages, beat the water more or less constantly with short vibratory strokes, sometimes lifting the larvæ high, toward the surface, and again allowing them to sink to the bottom where they may frequently lie for some moments almost motionless, only to resume again immediately their varied activity. Now they swim forward, now backward, now they lurch to the side, now to the rear, always maintaining more or less energetically this series of apparently aimless activities. Such is the nature of the swimming in daylight or other brilliant illumination; and for our purpose it can not be called the normal swimming of the lobster larvæ. It is only under special conditions that the latter may be observed; and, in view of

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the fact that it is the conditions of light which influence, more strongly than any other factors, the behavior of the larvæ, it is under certain light conditions that we may expect to find manifested what we may call the characteristic or normal swimming.

It is the twilight, or nocturnal, swimming of the larval lobsters which invariably presents the fairest example of natural behavior. It is at such times alone, or when the larvæ are submitted to artificially produced twilight, that the multiplicity of conflicting cross-light influences are most nearly eliminated from the amphitheatre; and whatever sort of swimming or other reactions are then manifested can be said to represent most truly and most exclusively those influences which arise from the physiological states themselves, independent of stimulation from without. In many instances, when the twilight was so dim that the activities of the larvæ could with difficulty be discerned, the writer has observed that the swimming was delicate and regular. The young larvæ would mount up, bird-like, to the surface water, and often hover for many seconds in a single position, or swim backward or forward with equal ease—perfect masters of their own activity. In case, at such times, even a lighted match should be brought near the side of the jar in which the larvæ were confined, the same restless and uncertain swimming, characteristic of the diurnal activities, would again be manifested, with the accompanying leanings and rotations. From these facts we may assume that the twilight swimming of the larvæ probably represents most accurately the natural behavior; and that the peculiar antics, characteristic of the daylight swimming, represent an unusual type of behavior, due to the action of conflicting external stimuli.

The question now naturally arises, do the various turnings and rotations, leanings, and fallings, which constitute the apparent haphazard behavior of the larval lobsters swimming in daylight or other brilliant illumination, give any indication of a method which may underlie this seemingly random activity? Our previous observations have at least given us a suggestion as to a means whereby we

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may attempt to ascertain the value of certain light conditions in determining the enaction of these peculiar gymnastics.*

If larval lobsters of any of the first three stages are submitted to such conditions of light that the stimulus comes from one direction, as from the side, the first fact observable in the reaction is that the larvæ undergo a certain body orientation; they turn their heads away from the light and bring the longitudinal axis of the body to lie parallel to the direction of the rays of light. The second fact which may be noticed is, that the larvæ, having assumed this body orientation, move in the direction of the light rays, either toward or from the source of illumination. A third fact, which is of maximum importance and which involves the considerations stated above, is that, no matter whether the progressive orientation (motion) of the larvæ is towards or away from the source of light, the orientation of the body (head away from the source of light) remains unchanged. To state the matter briefly we may say that, whatever the nature of the progressive orientation of the larvæ, the body orientation is at all times, and under all conditions, negative. Bohn† has clearly pointed out this fact for the larvæ of the European lobster. In this regard Bohn says:

> En général, les larves de homard se placent dans le sense négatif; meme, dans les premières heures après l'éclosion, alors qu'elles se groupent vis-à-vis des lampes leur tete se tourne du côté opposé, et les larves s'approchent de la lumière en regardant l'obscurité, c'est-à-dire en reculant. Ainsi, après l'éclosion, l'orientation a lieu dans le sens négatif, mais le déplacement se fait dans le sens positif. Dans la suite, si le sens de l'orientation reste le meme, le sens du déplacement peut changer.

Quite recently Lyon‡ has recorded a similar observation for certain larval stages of *Palemon*. The condition of affairs here noted is

*Many of the observations which follow were made previous to the writer's knowledge of the excellent work of Georges Bohn, of Paris, along similar lines, but involving observations upon the larvæ of the European lobster, *Homarus vulgaris*. The writer would acknowledge his great indebtedness to this investigator, whose work has proved suggestive in the highest degree; and whose observations on the mechanics of behavior the writer has been able, in the majority of instances, to verify and add to.

†Impulsions Motrices D'Origine Oculaire chez les Crustacés. *Institut Général Psychologique, Extrait du Bulletin no* 6–5 e *annee.* 1905

‡Biol. Bulletin, 1906, Vol. XII, p. 23.

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somewhat at variance with the majority of observations on the phototactic reactions of most animals, as it is contrary to the conditions of body orientation which we find in the fourth larval stage of the lobster itself; for in this stage we find, at least in the phototactic reactions, that the body orientation brings the head *toward* the source of illumination rather than *away* from it, as is invariably the case in the first three larval stages.

A question at once arises as to what we may mean by a positive photatactic reaction, for in the case of the lobster the fact is clear that we may very frequently have a negative body orientation coupled with a positive progressive orientation. Loeb* states: "Positively heliotropic animals are compelled to turn their oral pole toward the source of light and to move in the direction of the rays to its source." The instance of the lobster larvæ, and of other forms mentioned above, are certainly notable exceptions to this general rule. Until we know more regarding these differences and regarding the relations between body orientation and progressive orientation, it may be considered safe to say that *the direction of the progressive movement*, with respect to the source of illumination, may be held as the surest criterion for the nature of the phototactic response of animals in general.

On the other hand, the point has been made clear by some writers, that the body orientation of the organisms, the definite relation of the longitudinal body axis to the lines of active force of the stimulus, is the primary consideration for all deeper problems dealing with progressive orientation. However this may be, we have before us at least one instance wherein (although the relation of the body axis to the lines of force is an important consideration) *the body orientation per se has little or nothing to do with the question of the positive or negative progressive orientation of the organism; for the same conditions which invariably determine a negative body orientation may also determine either a positive or negative progressive orientation*, as other circumstances demand. We will therefore first concern ourselves

*Studies in General Physiology. Decennial Reports of the Univ. of Chicago, Vol. XX, p. 30.

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with the *mechanics of progressive orientation*, and then turn with better understanding to the *mechanics of body orientation;* for these two are presumably dependent upon quite different circumstances.

THE MECHANICS OF PROGRESSIVE ORIENTATION.

As we have already observed, the only means of locomotion possessed by the larvæ of the first three stages are the exopodites of the thoracic appendages, and the strong flexible abdomen with its broad terminal fan. It is but seldom that the latter is used, however, and never when it is a question of progressive orientation to light. We are then confronted with the problem: How, with the action of the thoracic exopodites alone, is the larval lobster able to execute those movements which shall determine his motion either toward the source of illumination or away from it? The superficial explanation of this phenomenon is simple enough; and it is probably due to its very simplicity that it has remained so long a time undetermined.

If the larval lobsters in any of the first three stages be put in a glass jar which is surrounded by black paper and placed in subdued daylight, their swimming activities may be studied to the greatest advantage. The short vibratory strokes of the exopodites may be readily observed. At one time, certain individuals may be seen to swim rapidly backward, and again forward, without any apparent change in the position of the body or in the direction of the stroke of the exopodites. If, however, the thoracic appendages themselves be carefully watched, one can observe that, from time to time, these limbs undergo either a forward shifting (extension) or a backward shifting (contraction). These changes from the "anterior" position to the "posterior" position may occur successively and at short intervals; the "forward" or the "backward" position may persist for some seconds, or again, there may be a successive alteration, with periods of longer duration in either one or the other of these positions.

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It will be observed, further, that, when the thoracic appendages take the "anterior" position, the direction of the strokes of the exopodites becomes somewhat forward, as well as downward; and the resulting motion of the larvæ becomes upward and backward. When, on the other hand, the thoracic appendages assume the "posterior" position, the stroke of the exopodites becomes backward and downward; and the resulting motion of the larvæ becomes forward and upward. During a great part of the time the upward movement of the larvæ, as the result of the outward and downward stroke of the exopodites, does little more than compensate for the natural tendency to sink toward the bottom. For this reason, the progression of the larvæ may be often directly forward or directly backward, with but slight deviation from the horizontal plane; while at other times, when the stroke of the exopodites is directly outward and downward (exclusive of either the "forward" or "backward" factor), the larvæ may mount to the surface in nearly vertical lines. Obviously enough, however, there may be many different directions of swimming, as determined by the degree of extension or contraction of the thoracic appendages.

It thus becomes evident that the progression of the larvæ, backward or forward, upward or downward, is largely determined by the position (the state of extension or contraction) of the thoracic appendages. In other words, if, for the greater part of the time, these appendages are in the "*anterior*" position, the reaction of the larva is positive; but if the thoracic appendages are more frequently in the "posterior" position, then the consequent reaction of the larva is negative. Naturally, the next important question which arises is: What conditions determine the "anterior" or the "posterior" positions of these thoracic appendages? It can not be questioned that these changes are directly due to certain variations in the intensity of the illumination, and are also modified by the "physiological state" of the larvæ themselves; that, furthermore, the state of extension or contraction of the thoracic appendages (and consequently the direction of the stroke of the exopodites,) is regulated

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to a great degree through the medium of the eyes and the nervous systems of the larvæ. But in what way this regulation is brought about we are not able at the present time to state. Obviously enough there here lies a problem, the solution of which would clear up many perplexing questions in the field of animal behavior.

THE MECHANICS OF BODY ORIENTATION.

Under the present heading we shall undertake a consideration of the nature of those peculiar movements which the lobster larvæ undergo when they are placed under diverse and changing conditions of stimulation; to explain the cause of these actions, and to show their relation to certain definite laws which may be said to regulate, to a great degree, the body orientation of the larvæ.

The Effects of Direct Lighting and Shading.—This section deals, first, with the directive influence of light rays so introduced as to strike the larvæ from different directions relative to the longitudinal body axis: from before, from behind, from the side, from above, from below, or at various oblique angles to the body axis, as the case may be. The larvæ upon which observations were to be made were placed either in a cylindrical glass jar or in the rectangular glass box already described. Both of these receptacles might be easily placed in the dark box where the direction and the intensity of the light could be regulated by mirrors and by screens. To regulate the intensity, colored slides of glass were used, while, to change the direction of the rays, a series of mirrors was also employed. In certain instances, when a bottom-light was required, the receptacle containing the larvæ was placed upon a glass plate which was raised to such a distance above the bottom of the box that a mirror could be introduced below. In still other instances the direction or the intensity of the light was modified by the use of light-absorbing (black) or light-scattering (white) backgrounds. These were used more frequently when the observations were made in diffused and almost homogeneous daylight, the subdued light coming to the glass

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containers from many different directions and thus eliminating, to a great degree, the directive influence. Still other experiments were performed to ascertain the effects of suddenly blocking the illumination by which the larvæ were being stimulated.

In these cases the "cut-off" was made by closing the window through which the light entered, thus leaving the larvæ in the subdued and diffuse light from the room. Inasmuch as the body orientation of the larvæ to the directive influence of the light is always the same, obviously enough there could not be very many different varieties of orientation to which the change in the conditions of light could be applied. The resumé of these experiments may be presented as follows:

Résumé of Experiments on the Effect of (A) Direct Lighting and (B) Shadowing.—(A) The effect of suddenly submitting the larval lobsters to a light which has a single directive influence is to cause the larvæ to orient themselves in such a manner that the longitudinal axis of the body assumes a certain definite relation to the direction of the light rays; and this orientation is a position with the longitudinal axis of the body parallel to the light rays, and with the head turned away from the source of light. (B) The effect of suddenly blocking the light to which the larvæ are reacting phototactically, is to cause a new body orientation wherein the head is usually brought to face the direction from which the light had previously come.

In either of the cases mentioned above, the body orientation is brought about by a series of motor reflexes some of which Bohn* has described for *Homarus vulgaris*.

1. *Forward or Backward Rotations or Somersaults.*—These are usually rotations in an arc of few degrees which directly determine a new swimming position. The head is raised or lowered, depending upon the direction from which the light or shadow has been introduced. In other cases these rotations may take the form of a variable number of complete rotations through 360 degrees, either backward

Loc. cit.

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or forward, in which the body of the larva forms a constant part of the circumference of the circle of rotation.

2. *Revolutions on the Longitudinal Axis of the Body or "Rollings."*—The revolutions or rollings may take place either to the right or left, but usually in such direction that the back of the larva becomes directed more or less toward the light. They may be through a few degrees or they may exceed 90 degrees, in which case the larva falls to the bottom. In the case of larvæ which have suffered injury to one eye, these revolutions may take place very rapidly—often at the rate of one hundred and fifty per minute—and always in a determined direction.

3. *Swingings of the Longitudinal Axis of the Body.*—These are in such direction that the head is brought to face the dark, and the tail to point toward the light. The swing is always of such a nature that the head is brought, by the shortest path, to face the dark.

4. *Rotations in the Radii of a Circle.*—In these the longitudinal axis of the larva forms a radius and, with either the head or the tail at the center, the larva rotates about a fixed point. This type of reaction is uncommon and, as yet, unexplainable.

These four types of movement seldom occur separately, except under especially devised experiment. Two or more of these types usually are found blended to form composite types of action. To these previously mentioned simple componets, all the movements of the larval lobsters may be reduced.

The Effects of Screens and Backgrounds.—Generally speaking, it is fairly probable that the reactions to light, which are brought about through the use of backgrounds, are dependent upon the same factors and conditions of illumination which may be produced by the employment of light-absorbing or light-scattering screens. For this reason we might consider the effects of screens and backgrounds together, were it not for the fact that the nature of the experiments makes it more advantageous to treat the two subjects separately: first, the effect of screening upon the body orientation of the larvæ.

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In these investigations were used screens of black and white, and of such size that they could readily be brought close to the sides of the glass containers in which the larvæ were placed. Bohn has made a special study of the reactions of crustacea to the influence of such screens, and in several instances the observations of the writer upon the larvæ of *Homarus americanus* are but confirmations of certain phases of Bohn's work. In many cases, however, new facts have been added.

Generally speaking, it may be said that the use of the white screen gave much the same sort of results as those obtained by the sudden introduction of direct light; and the black screen, the same results obtained by "cutting off" the light. For this reason it will not be considered necessary to go into extensive details to show the nature and the result of each experiment. Let it suffice to state the results in a general way, and to contrast the results with those obtained in the case of direct lighting and shading.

Resumé of Experiments on the Effect of Black and White Screens.— When black or white screens are made to approach lobster larvæ of any one of the first three stages, diversely oriented, the larvæ may present two forms of response: First a motor reflex which tends to place the longitudinal axis of the larvæ in a certain relation to the plane of the screen; secondly (and subsequent to the first response), a progressive orientation, toward or away from the screen, as the color of the screen and other conditions of the case determine.

(1) When the white screen is employed the larvæ become oriented with the head, in general, directed away from the screen. With the use of black screens, however, the head comes to be directed toward the screen, and the back more or less away from it. (2) After these body orientations have taken place, the larvæ may approach or recede from the black or the white screen, according as they are reacting positively or negatively to the directive influence of the light.

The types of reaction upon which the body orientation to the influence of screens was found to depend, agree, for the greater part,

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with the types of reaction to black screens which have been reported by Bohn for the European lobster.

We have now examined rather briefly the effects of sudden illumination and of sudden shadow, the effects of white screens and of black; and if we now compare the detailed results of these studies, we note that the effects produced by introducing a white screen are very comparable to those obtained by suddenly admitting illumination, while the effects brought about by black screens are comparable to those determined by suddenly cutting off the light. In other words, it becomes clear that the larvæ respond to the influence of screens of black and white by reactions which are dependent upon the same simple types of behavior that have been previously described.

In view of this correspondence in the nature of reaction to direct lighting and to screens of black and white, it may be considered most probable that the screens are instrumental in determining the behavior of the larvæ, only in so far as they are themselves the source of (reflected) illumination, or, in the case of the black background, a light-absorbing agent. Therefore, when the black background causes a swing of the larva, as a result of which he comes to face the screen, we cannot say that the primary factor is the *blackness* of the screen; but rather, that the total light absorption and consequent non-reflection of light rays from a particular direction allow rays of light from other directions to be particularly effective; and we know from our previous experiments that the final orientation of the larva is determined by the *relative* intensities of light striking the eyes from different directions. Therefore, the larva "heads" to the black screen because his eyes encounter no light rays coming from this direction; and he "heads" away from the white screen because his eyes do encounter a stronger reflected light from this than from any other direction.

The Effect of Backgrounds.—The question of the influence of backgrounds in determining the orientation of some crustacean larvæ has been ably brought forward by Keeble and Gamble.* The whole

*The Color Physiology of Higher Crustacea. *Philosophical Transactions, Royal Society of London*, Series B, Vol. CXCVI, p. 295–388.

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question of screening which we have discussed in the preceding section is probably but a single phase of this problem of backgrounds. By the term background, as it is used in the present case, is meant the permanent color-tone of the surrounding walls (as a whole or part) which confine the young larvæ. This condition was somewhat different from that determined by the use of screens that were movable and could be placed at any angle with reference to the body axes of the larvæ. In the present treatment, backgrounds were employed in several different ways. They were sometimes represented by the black or white lining of the reaction boxes; again by the ground upon which the glass dishes or tubes rested, or in still other cases by the outer covering of these dishes or tubes. The question of the effect of background may be considered under two heads: (1) the effect of backgrounds in connection with the purely photopathic responses; (2) their effect in determining the "choice" of a region of particular light intensity when phototaxis is also operative.

From the result of experiments on the effect of backgrounds in connection with purely photopathic responses, it appeared that the nature of the background had no important influence upon the sign of the photopathic response of the early stage larvæ of the lobster, although the intensity of the light did appear to have been of value in determining the nature of the reaction. On the other hand, we note from other experiments that larvæ which were positive on a white background were negative (under the same conditions of light) when upon a black background. It is true that, when these experiments were performed, the value of knowing the exact age and history of the larvæ under observation was not fully appreciated by the writer. But these experiments were nevertheless suggestive of a certain effect of background in modifying the sign of the photopathic reaction.

A study of the effect of background in connection with both the phototactic and photopathic response received greater attention. Under this head we may consider those conditions of experiment which, although they are no doubt chiefly productive of phototactic

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reactions, nevertheless do not eliminate the possibility of a response to the intensity of the light. These conditions were secured by the use of the Y-tubes, already mentioned. The experiments therewith serve to demonstrate why the tendency to gather in the brighter areas (assumed positive photopathy) is usually associated with positive phototaxis; and why a tendency to gather in the darker areas (assumed negative photopathy) is usually associated with negative phototaxis. The citation of a few experiments will serve to illustrate both technique and results.

In the diagrams of the accompanying plate are represented the Y-tubes as set up for experiment. Those whose horns are above were arranged for experiment with larvæ having positive phototactic reaction; those whose horns are below, for larvæ having a negative phototactic reaction. In tubes A and B, one side of one horn (c) was fitted with a band of black paper which extended half over the circumference of the horn, and reached a very short distance down each stem. In tubes C and D the same arrangement existed, save that white instead of black paper was used. In every case the light rays came from the window in the direction indicated by the arrows. In all cases of larvæ manifesting a negative reaction, the start was made at the end of the tube (lying horizontally on the table) nearer the window. In the case of positively reacting larvæ, on the other hand, the start was made from the end of the tube farther from the window. The end designated a, was in every instance the end *from which* the larvæ moved. The point of the experiment was to determine in which horn of the Y-tube the larvæ would eventually congregate.

Case 1.

In this instance the tube was arranged as in Fig. A. Ten positively reacting, first-stage larvæ were placed in the Y-tube and, by certain manipulations of the light and by virtue of their positive reaction, were made to congregate in region a. Then suddenly the direction of the light was changed so as to come in the direction of

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the arrow. Immediately the larvæ would orient themselves with their heads toward the end, a, and pass through the tube toward the light. As soon as they approached the region marked x, they would come under the influence of the dark background bounding the side of the tube. Immediately, as we have seen to be the case in previous instances, the larvæ would undergo a swing of the longitudinal body axis so that the head would come to face more or less obliquely the dark background. The directive influence of the rays, however, continued to draw the larvæ on, but since they must travel in the direction in which the tail was directed, they entered the horn of the tube, b, and continued until further progress was prevented by their reaching the end of the horn. Space will not be taken to show the numerical counts resulting from the actual experiments. Suffice it to state that nearly all of the positively reacting larvæ, of whatever stage or age, when submitted to these conditions of experiment, reacted as has been described above.

This experiment was modified by so placing the Y-tube that the horn, b, overlay a piece of black paper. The results were invariably the same: the majority of larvæ entered that horn of the tube *not overlying the black backgronnd.*

Case 2.

In this case the conditions of the experiments were further modified by so reversing the Y-tube that the horns pointed away from the window. In this instance larvæ which were manifesting a negative reaction were employed, and were first placed in the end, a, nearer the window. When the light was admitted, the larvæ at once oriented with their heads directed away from the light, and began a progression away from the window. When they had reached the point designated x, they immediately underwent a swing of the longitudinal axis, as in previous cases, so that the head became directed toward the black ground bounding the outer surface of the horn, c. In this direction they continued to advance until the

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majority of the larvæ had gathered in this horn of the tube. In this instance, however, instead of moving to either end of the horn, the larvæ frequently rested between x and c.

Case 3.

In this instance the black background bounding the outer side of one horn was exchanged for a white ground of the same size, and having the same position shown in Fig. C. In this case, third-stage larvæ giving a positive reaction were employed for the experiment, and were started in the end of the tube, a. When the light was admitted, the usual body orientation resulted, and the larvæ began their progression through the tube toward the window. When they had arrived at the point x, they would come under the influence of the white ground and turn their heads away from this side. Progressive orientation would continue and the larvæ would eventually become grouped in the horn of the tube marked c. Similar results were obtained when this arm of the tube was laid over a sheet of white paper.

Case 4.

The previous experiment was further modified by reversing the Y-tube so that the horns were directed away from the window, Fig. D. In this instance, larvæ which were giving a negative reaction were employed. They were placed in the end, a, and the light was admitted. After the usual body orientation, the progression away from the window began to take place. When the larvæ reached the point x, and had come under the influence of the white ground bounding the side of the tube, they would swing their heads toward the left and continue their progress until all were gathered in horn, c. This was somewhat unexpected. It eventually transpired, however, that the white ground bordering the outer surface of the tube did not act as a reflector or intensifier of the rays, but as an opaque shield, cutting off the rays which would have otherwise

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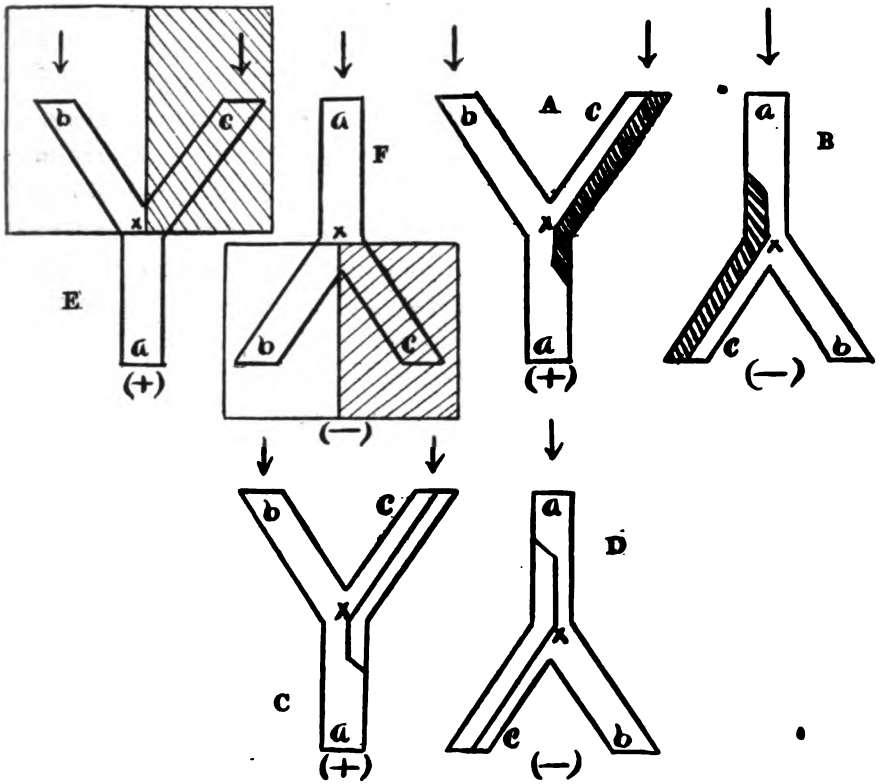
entered the horn, c. Thus, as in case B, the negatively reacting larvæ had merely grouped themselves in the horn where the light was least bright. When the Y-tube was so placed that the arm, c, overlay a sheet of white paper the result was different. The larvæ congregated in horn, b, which was, under these conditions, the region of least light intensity.

The four cases mentioned above were supplemented by other experiments involving the use of colored glass plates, which were placed over the horns of the Y-tube in such a manner as to create a



Showing the ues of the Y-tubes.

difference in the intensity of light in the two horns, as shown in Fig. 1, E, F; or sometimes the light striking one horn would merely be intercepted by interposing a red, orange, or yellow glass plate between

that horn and the source of illumination. In these cases the same general results which we have seen in the four previous cases appeared: The positively reacting larvæ would gather in the horn where the light intensity was greater, while the negatively reacting larvæ would group themselves in the horn where the light was less bright. When one horn of the tube was covered with red glass, the other with orange, the positively reacting larvæ would gather in the orange horn, while, if the experiment was modified for negatively reacting larvæ, they would congregate in the red horn. As a rule, larvæ of the eariler stage appeared to be more susceptible than the others to slight differences in the intensity of light at the entrance to the horns, and would react readily to such a slight difference of intensity as that between red and "ruby" glass. (Unfortunately no means of accurately measuring the entensities of light in which certain reactions took place, was at hand.) Thus we have explained the general tendency for positively reacting larvæ to gather in regions of greater light intensity; and, on the other hand, the tendency for negatively reacting larvæ to congregate in the regions of lesser light intensity.

Conclusions.

It is not to be doubted that the types of reaction which have been described in the previous pages are influential in determining, in a large measure, the behavior of the lobsters under natural conditions of environment. But when one attempts to interpret the daily behavior of the larvæ in terms of these tropisms, the results begin to flavor of speculation. For instance, we know that under experimental conditions the fourth-stage larvæ, when submitted to food stimuli, will rise at once to the surface of the water and swim about excitedly for some moments. We know also that the early fourth-stage larvæ, under experimental conditions, will leave a region of low light intensity, and remain in a region of greater light intensity.

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We have learned, furthermore, that these same fourth-stage larvæ of all ages, under experimental conditions, will usually shun the light when it has a single directive influence, and travel in the direction of the rays away from their source. Finally, we have observed that the fourth-stage larvæ, except those in the latter part of the stage period, show a very definite tendency to remain at the surface of the water, where they swim actively during a large part of the fourth stage-period. The question now arises: What is the cause of this surface swimming of the fourth-stage lobsters, under normal conditions? Is it a response to intensity of light, to the directive influence of light, to hunger, or is it perhaps a form of geotaxis? Although we know something of the individual workings of several of these reaction factors, we need to be cautious in deciding upon their individual instrumentalities when they have opportunity to work in combination. If we can discover, however, any parallel between a certain type of reaction under experimental conditions and a certain mode of behavior under natural conditions, and find that, as one is modified or lost, so is the other,—then, and then only, are we justified in believing that we know the determining cause of the particular type of natural behavior in question. We have such a parallel between the photopathic reactions and the surface-swimming tendency of the fourth-stage lobsters. As the former becomes modified and is eventually replaced by the negative reaction, so the latter is changed, and finally gives way to the bottom-seeking tendency, as the lobsters pass on through the fourth stage-period. With such a parallel before us, it can not be doubted that there exists a certain causal relation between the positive photopathic reaction and the surface-swimming tendency on the one hand, and the negative photopathic reaction and the bottom-seeking tendency on the other. This view is further supported by the fact that the early fourth-stage larvæ could, at night, be drawn into a region illuminated by means of acetylene lanterns. Late fourth-stage larvæ would never manifest this reaction so clearly, and often appeared even to be repelled by the influence of the light.

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But the photopathic reaction may not alone be responsible for the surface-swimming tendency on the part of the fourth-stage larvæ. As has been shown, the presence of food particles in the water excites them strongly and causes them, when in the museum jars, to swim excitedly at the surface of the water. This tendency was never manifested by the fifth-stage lobsters. It therefore appears quite within the bounds of possibility that hunger and the stimulation by food particles in the water may also play a certain part in determining the surface-swimming characteristic of the fourth larval stage.

There is little advantage to be gained by attempting to explain the natural behavior of the lobster larvæ of early stages, on a basis of the tropisms. It is true that they usually do select the regions of greater light intensity. On the other hand, the directive influence of the light rays may determine at one time a positive reaction, at another, a negative; and these reactions may follow each other in such rapid succession (depending on the intensity of the light and the age or stage of the larvæ) that the general reactions of groups of lobster larvæ, or of isolated individuals in question, could in no way be readily predicted. One exception to this may be stated: The first-stage larvæ, directly after hatching, would be strongly drawn to the surface of the water by virtue of not only their positive phototactic, but also their positive photopathic reaction. After the first day or two, however, begins that modification and variation in the reactions which, for groups of uncertain age, makes an accurate prediction of their movements impossible.

The explanation of the behavior of lobsters in the fifth and in all later stages, on a basis of the tropisms, is a far different matter. We have observed that the fifth-stage lobsters invariably manifest both a negative phototactic and a negative photopathic reaction. This circumstance explains well enough the fact that lobsters of the fifth and all later stages shun the light at all times.*

*The object of the present paper has been to present briefly the results of an investigation, the complete details of which will be published at a later date.

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X. The Preparation of an Exhibit Illustrative of Sea Farming, including Live Fishes in Salt Water Aquaria, for the Washington County Fair, for the Purpose of interesting the People of the State in the Magnificent Possibilities of "Sea Farming."

For the third time your Commission has coöperated with the Washington County Agriculture Association in arranging an exhibit of "Sea Farming." The feature of the exhibit which was particularly noteworthy of this occasion was the collection of live salt and fresh water fishes. The authorities in charge of the affair installed, under the direction of your Commission, a system of filters, storage tanks, and pumps, by means of which salt water could be used over and over again, after passing through the filter. The water was cooled by means of ice underneath the aquarium.

The results were, in general, very satisfactory and most of the fish shipped from Wickford remained alive in the tanks during the several days of the fair. Exhibits of trout, from the Carolina hatchery and various forms of shell fish, including the scallop, clam, lobster, etc., and exhibits of various kinds of fishing tackle and other contrivances of catching fish were made. The object of the exhibit from the point of view of the Commissioners was to interest the people of the State in the fisheries, and indirectly in the possibility of developing the fish industries. A very large number of people examined the exhibit, and the interest manifested was especially gratifying. Your Commission expects to continue this work next year.

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XI. The Preparation of an Exhibit for the International Exhibition at Jamestown.

Your Commission was invited by the United States Bureau of Fisheries to collaborate with them in arranging an exhibition of fisheries at the Jamestown Exposition; accordingly a considerable part of the exhibit which was used at the Louisana Purchase Exposition was forwarded to Jamestown, and placed under the direction of the government authorities.

This was the third international exposition in which your Commission has taken part; two of them in collaboration with the Fisheries Bureau of the United States.

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APPENDIX A.

STATE FISHERIES AUTHORITIES.

(List based upon most recent information at hand, date of which is given for each state.)

ALABAMA.

State Game and Fish Commissioner, (1907).

John H. Wallace, Jr.....Montgomery.

ARIZONA.

Fish and Game Commission (1905).

T. S. Bunch.....Safford.
Eugene Allison.....Jerome.
L. W. Penny, Secretary.....Phoenix.

CALIFORNIA.

California Fish Commission (*December*, 1906).

W. W. Van Arsdale, President.....San Francisco.
W. E. Gerber.....Sacramento.
John Bermingham.....Pinole.
Charles A. Vogelsang, Chief Deputy.....San Francisco.

COLORADO.

Department of Game and Fisheries (*December* 1906).

J. M. Woodard, Commissioner.....Capitol Building, Denver.

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CONNECTICUT.

Department of Fish and Game (December, 1906).

George T. Mathewson, President.....Thompsonville.
Robert G. Pike.....Middletown.
E. Hart Geer, Secretary.....Hadlyme.

Connecticut Shellfish Commission (1906).

George C. Waldo.....Bridgeport.
Christian Schwartz.....South Norwalk.
William J. Atwater.....New Haven.

FLORIDA.

Florida Fish Commission (1907).*

John Y. Detwiler, Honorary Commissioner.....New Smyrna.
John G. Ruge, Secretary.....Appalachicola.
C. R. Walker.....Sanford.

GEORGIA.

Superintendent of Fisheries (December, 1906).

A. T. Dallis.....La Grange.

IDAHO.

State Fish and Game Warden (1906).

W. N. Stephens.....Rexburg.

ILLINOIS.

Board of State Fish Commissioners (1907).

Nat. H. Cohen, President.....Urbana.
Henry Kleine.....Chicago.
S. P. Bartlett, Secretary and Superintendent.....Quincy.

INDIANA.

Commissioner of Fisheries and Game (December, 1906).

Z. T. Sweeney.....Columbus.

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*Only Mr. Detwiler's name and title verified for 1907.

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IOWA.

State Fish and Game Warden (December, 1906).

George A. Lincoln.....Cedar Rapids.

KANSAS.

State Fish Warden (December, 1906).

D. W. Travis.....Pratt.

LOUISIANA.

Oyster Commission of Louisiana (1907).

J. M. Breaux, President.....Houma.
Clement Story.....Melonie.
Horace H. Harvey.....Harvey.
Ben Michel.....Pilottown.
A. E. Hoffman.....Thibodaux.

MAINE.

Commissioners of Inland Fisheries (December, 1906).

Leroy T. Carleton, Chairman.....Augusta.
J. W. Brackett.....Phillips.
Edgar E. Ring, Secretary.....Orono.

Commissioner of Sea and Shore Fisheries (December, 1906).

James Donohue.....Rockland.

MARYLAND.

State Fish Commission (1907).

C. F. Brooke, Commissioner for Western Shore.....Sandy Spring.
J. D. Anderson, Commissioner for Eastern Shore.....Deals Island.

Shellfish Commission (1907).

Walter J. Mitchell, Chairman.....La Plata.
Benj. K. Green, Treasurer.....Westover.
Dr. Caswell Grave, Secretary.....Baltimore.

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MASSACHUSETTS.

Commission of Fisheries and Game (1907).

Dr. G. W. Field, Chairman.....Boston.
J. W. Delano, Superintendent of Hatcheries.....Boston.
E. A. Brackett.....Winchester.

MICHIGAN.

State Board of Fish Commissioners (*December*, 1906).

C. D. Joslin, President.....Detroit.
F. B. Dickerson, Vice-President.....Detroit.
George M. Brown.....Saginaw.
Seymour Bower, Superintendent of Hatcheries.....Detroit.

MINNESOTA.

Board of Fish and Game Commissioners (1907).

O. J. Johnson, President.....St. Paul.
Carlos Avery, First Vice-president.....St. Paul.
John H. Grill, Second Vice-president.....St. Paul.
H. G. Smith, Secretary.....St. Paul.
S. F. Fullerton, Executive Agent.....Duluth.

MISSOURI.

Missouri State Fish Commission (*March*, 1907).

Richard Porter, President.....Paris.
W. H. Hughes, Vice-president.....St. Louis.
J. M. Shortal, Secretary.....St. Louis.
John Gable.....Browning.
T. F. Van Natta.....St. Joseph.

MONTANA.

State Game and Fish Warden (*December*, 1906).

W. F. Scott.....Helena.

NEBRASKA. (*December*, 1906).

Governor, Commissioner *ex-officio*.....Lincoln.
George L. Carter, Chief Warden.....Lincoln.
W. J. O'Brien, Superintendent of Hatcheries.....Gretna.

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NEW HAMPSHIRE.

Fish and Game Commission (1906).

Nathaniel Wentworth, Chairman.....Hudson Center.
Charles B. Clark, Financial Agent.....Concord.
Merrill Shurtleff, Secretary.....Lancaster.

NEW JERSEY.

Fish and Game Commission (1907).

B. P. Morris.....Long Branch.
R. T. Miller.....Camden.
D. P. McClellan.....Morristown.
P. H. Johnson.....Bloomfield.
J. M. Stratton, Fish and Game Protector.....Long Branch.

State Oyster Commission (1904).

E. T. Riley.....Newport.
E. L. Stites, Jr.....Fort Norris.
Jeremiah N. Ogden.....Bridgeport.
Wm. De Groff.....Keyport.
A. T. Bacon, Superintendent of Hatcheries.....Mauricetown.

NEW YORK.

Forest, Fish and Game Commission (1907).

Jas. S. Whipple, Commissioner.....Albany.
J. Duncan Lawrence, Deputy Commissioner.....Albany.
John D. Whish, Secretary.....Albany.
Dr. T. H. Bean, State Fish Culturist.....1 Madison Avenue, New York.
B. Frank Wood, Superintendent of Shell Fisheries.....Jamaica.
Wm. F. Fox, Superintendent of Forests.....Albany.

NEVADA.

State Fish Commissioners, 1907.

George T. Mills.....Carson.
E. B. Yerington.....Carson.
H. H. Coryell.....Wells.

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NORTH CAROLINA.

State Fish Commissioner (1907).

Theodore S. Meekins.....Manteo.

Shellfish Commissioner (1907).

W. M. Webb.....Morehead City.

NORTH DAKOTA.

Game Wardens (1905).

F. W. Schlechter.....Fessenden.
Wm. McKean.....Sanborn.

OHIO.

Fish and Game Commission (1906).

Paul North, President.....Cleveland.
T. B. Paxton.....Cincinnati.
D. W. Green.....Dayton.
George McCook.....Steubenville.
J. F. Rankin.....South Charleston.

OKLAHOMA.

Territorial Game and Fish Warden (1907).

Eugene Watrous.....Enid.

OREGON.

Board of Fish Commissioners.

Governor.....Salem.
Secretary of State.....Salem.
State Treasurer.....Salem.

Master Fish Warden (1907).

H. G. Van Dusen.....Astoria.

PENNSYLVANIA.

Department of Fisheries (1907).

W. E. Meehan, Commissioner.....Harrisburg.
John Hamberger.....Erie.

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Henry C. Cox.....Wellsboro.
Andrew R. Whitaker.....Phoenixville.
W. A. Leisenring.....Mauch Chunk.

RHODE ISLAND.

Commisisoners of Inland Fisheries (1907).

Henry T. Root, President, Treasurer and Auditor.....Providence.
J. M. K. Southwick, Vice-president.....Newport.
Charles W. Willard.....Westerly.
A. D. Mead.....Brown University, Providence.
W. P. Morton, Secretary.....P. O. Box 966, Providence.
Adelbert D. Roberts.....P. O. Box 264, Woonsocket.
William H. Boardman.....Central Falls.

Commissioners of Shell Fisheries (1907).

Philip H. Wilbour.....Little Compton.
James M. Wright.....Clayville.
John H. Northup.....Apponaug.
George W. Hoxie.....Shannock.
Herbert M. Gardiner.....Barrington.

SOUTH CAROLINA.

State Board of Fisheries, (1907.)

James M. Rhett, Chairman.....Beaufort.
L. M. Gasque.....Marion.
George S. Mower.....Newberry.

TENNESSEE.

State Game and Fish Warden (1906).

Joseph H. Acklen.....Nashville.

TEXAS.

State Fish and Oyster Commissioner (1907).

I. P. Kibbe.....Port Lavaca.

UTAH.

State Fish and Game Commissioner (1905).

John Sharp.....Salt Lake City.

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VERMONT.

Commissioner of Fisheries and Game (1907).

Henry G. Thomas.....Stowe.

VIRGINIA.

State Board of Fisheries (1905).

J. W. Bowdoin, Chairman.....Bloxam.
S. F. Miller, Secretary.....Foster.
George B. Keezell.....Keezletown.
H. M. Tyler.....Richmond.
R. J. Camp.....Franklin.

WASHINGTON.

Department of Fisheries and Game.

Board of Fish Commissioners.

Governor.....Olympia.
State Treasurer.....Olympia.

State Fish Commissioner and Game Warden.

John L. Risland.....Bellingham.

WEST VIRGINIA.

State Game and Fish Warden (1905).

J. H. Marcum.....Huntington.

WISCONSIN.

Commissioner of Fisheries (1907).

The Governor.....Madison.
Calvert Spensley, President.....Mineral Point.
James J. Hogan, Vice-president.....La Crosse.
E. A. Birge, Secretary.....Madison.
William J. Starr.....Eau Claire.
Henry D. Smith.....Appleton.
Jabe Alford.....Madison.
A. A. Dye.....Madison.

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APPENDIX B.

FISHERIES LAWS OF RHODE ISLAND, 1905.

[Compiled by the Commissioners of Inland Fisheries.]

GENERAL LAWS.

CHAPTER 1.

The jurisdiction of the Commissioners of Inland Fisheries covers the territorial limits of the State as given in the following two sections of chapter one, and covers all the fisheries of the State except the oyster and scallop fisheries, which are under the jurisdiction of the shell fish commissioners.

SECTION 1. The territorial limits of this state extend one marine league from its seashore at high water mark. When an inlet or arm of the sea does not exceed two marine leagues in width between its headlands, a straight line from one headland to the other is equivalent to the shore-line. The boundaries of counties bordering on the sea extend to the line of the state as above defined.

SEC. 2. The jurisdiction of the state shall extend to, and embrace, all places within the boundaries thereof, except as to those places that have been ceded to the United States, or have been purchased by the United States with the consent of the state.

CHAPTER 171.

Of Certain Fisheries.

SECTION 1. Every person who shall set or draw any seine in any part of the river running from Warren river through the town of Barrington, except that part lying north of the Congregational church building in the said town of Barrington, shall forfeit twenty dollars.

SEC. 2. Every person who shall set or draw any seine or net in Easton's pond in Newport and Middletown for the purpose of catching fish, or shall set

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any such net or seine in the creeks or inlets of said pond above the bridge at Easton's beach, shall be fined twenty dollars or be imprisoned ten days.

SEC. 3. Every person who shall set or draw any seine or net in Kickamuit river within half a mile from the place called the narrows shall forfeit fifteen dollars.

SEC. 4. Every person who shall erect or make any weir, pot, or other contrivance to obstruct the course of fish across Puncatest, alias Nomquit, pond, or any part thereof, or in any river or stream leading into or out of said pond at any time, shall forfeit ten dollars.

SEC. 5. Every person who shall set any hanging or mesh net in Puncatest, alias Nomquit, pond, or in any river leading into or out of said pond, between the first day of January and the first day of August, shall forfeit ten dollars.

SEC. 6. Every person who shall erect or continue in Palmer's river, above Kelly's bridge, any weir, dam, or other obstruction to prevent the free passage of fish up said river, shall forfeit fifteen dollars for the first offence and ten dollars for every twenty-four hours any such weir or dam or other obstruction shall be continued after the first twenty-four hours.

SEC. 7. Every person not at the time an inhabitant of this state who shall set or draw any seine or net in Palmer's river, above Kelly's bridge, on Thursday, Friday, or Saturday, and every person who shall set or draw any seine or net in said river above said bridge on Sunday, or between the setting and rising of the sun, shall forfeit for each offence fifteen dollars.

SEC. 8. Repealed.

SEC. 9. Repealed.

SEC. 10. Repealed.

SEC. 11. No person shall take any fish with any kind of gill or mesh net, or set any gill or mesh net for the purpose of taking any fish therewith, within one mile from the shore of Block Island, between the first day of June and the first day of November in each year, without first obtaining permission of the town council of New Shoreham; and every person violating any provision of this section shall be fined twenty dollars for each offence; one-half to the use of the complainant and the other half to the use of the town of New Shoreham.

SEC. 12. Any person who shall take any fish with any kind of seine, net, or trap, or set or draw any seine, net, or trap, for the purpose of taking any fish therewith, in any of the fresh water ponds in the town of New Shoreham, except in private ponds owned by one person, shall be fined not exceeding twenty dollars or be imprisoned not exceeding ten days, or be both fined and imprisoned in the discretion of the court.

SEC. 13. The electors of the town of New Shoreham may, in town meeting called for that purpose, enact such ordinances as they may think proper to pro-

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tect and to regulate the taking of shell-fish and other fish in Great Salt pond, and may impose penalties therefor not exceeding twenty dollars fine and three months' imprisonment for any one offence.

SEC. 14. The electors of the town of Tiverton may, in town meeting called for that purpose, make such regulations for the preservation of the fish, and may exercise such control over the fisheries of Nomquit pond, within the limits of said town, as they may think proper.

SEC. 15. No person shall, between the first Monday in October and the first Monday in January, erect any weir or draw any seine or net for the purpose of catching or obstructing the passage of fish at or within one hundred and sixty rods of the mouth of Pataquamscut river in South Kingstown, nor shall any person erect or put down any weir, standing seine, or trap-seine, or hoop-net of any kind, either within or across said river at any other season of the year.

SEC. 16. Nothing in the preceding section shall be so construed as to prohibit any person from using nets or fishing crafts for the catching of smelts, such as are commonly used in the smelt fishery, between the first day of February and the first day of April, or to prohibit the setting of gill nets for bass in said river or pond: *Provided*, that such nets shall not exceed twenty fathoms in length, nor be set within twenty fathoms of each other, nor south of the dividing line between lands now or formerly of William G. Watson and George W. Crandall, nor within twenty rods of the narrows that connect the upper and lower ponds; nor shall any person maintain any such standing seine or net in the same place for more than twenty-four hours if any other person demands the same place for the purpose of setting a like net or drawing a seine therein.

SEC. 17. Every person who shall violate any of the provisions of the preceding two sections shall be fined not less than twenty dollars nor more than fifty dollars for each offence, and shall forfeit the seine, net, boat, and other apparatus by him used in such violation.

SEC. 18. Every person who shall set any trap or net or draw any seine at any time west of a line drawn from Calf-pasture Point on the north side of Allen's harbor to Rocky Point on the south side thereof, or west of a line drawn from Pojack Point on the south side of Potowomut river to Marsh Point on the north side thereof, shall be fined not less than five dollars nor more than twenty dollars; one-half thereof to the use of the complainant and one-half thereof to the use of the state.

SEC. 19. No person shall between the fifteenth day of April and the fifteenth day of June, inclusive of both days, or between the fifteenth day of August and the fifteenth day of December, inclusive of both days, commencing at the rising of the sun on both days, erect any weir or set or draw any seine or net for obstructing, catching, or hauling of fish within half a mile east from Point Judith ponds

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breach, meaning the breach for the time being into the sea, or within a point on the west side of said breach four rods distant from Joseph Champlin's fish-house, so called, or within said breach, or within any channel leading to said ponds, or any branch thereof from the sea, or within a quarter of a mile of the entrance of such channel into said ponds or branches of said ponds; and whenever the fifteenth day of December happens on Sunday this prohibition shall continue to the rising of the sun on the next succeeding day.

SEC. 20. No weir shall be erected, nor any standing seine or net set, in any part of Charlestown pond, Quonochontaug pond, or Babcock's pond, otherwise know as Brightman's pond, nor across the channel, or in Point Judith's ponds within a quarter of a mile from the following places, namely: Alder Point near where Saukatucket river flows into said ponds; Princes narrows, which connects the upper with the lower ponds; Strawberry hill on Great Island; High Point, so-called, on lands of the heirs of Joseph Sherman, and Gooseberry Hole.

SEC. 21. No person shall, between sunset on the first Monday in April and sunrise on the second Monday in June, erect any weir or net or draw any seine or net for the purpose of catching or obstructing the passage of fish in any part of Point Judith pond south of a line drawn from the most northerly point of Strawberry hill on Great Island to the most northerly point of High Point in said pond.

SEC. 22. No person shall erect any weir or set or draw any seine or net for the obstructing, catching, or hauling of fish within any part of said ponds or any branch thereof, at any time between sunset on the fifteenth day of August and sunrise on the fifteenth day of December.

SEC. 23. No seine or net of any sort shall be used at any time within said ponds or any branch thereof, of over one hundred fathoms in length, nor any standing seine or net of over twenty-five fathoms in length.

SEC. 24. No person shall set any standing seine or net, at any time, within forty rods of any place within said ponds or any branch thereof where another person may have already set his standing seine or net, nor shall any person maintain any such standing seine or net in the same place for more than forty-eight hours if any other person desires to occupy the place.

SEC. 25. Every person violating any provision of the preceding six sections shall be fined not less than twenty dollars nor more than fifty dollars, and shall also forfeit the boat, seine, net, and other apparatus by him used in such violation, one-half of said fine and forfeiture to the use of the person complaining and one-half thereof to the use of the state.

SEC. 26. Every person living without the state who shall take any lobsters, tautog, bass, or other fish within the harbors, rivers, or waters of this state, for

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the purpose of carrying them thence in vessels or smacks, shall be fined ten dollars for every offence, and shall forfeit all the fish or lobsters so taken.

SEC. 27. Every person who shall take any fish in any stream or fresh pond, except upon his own land, otherwise than by a single hook and line, or who shall take or carry away any fish from any private pond, brook, stream, preserve, or any other place made, constructed, or used for the purpose of breeding or growing fish therein, without the consent of the proprietor or lessee of such pond, brook, stream, or preserve, shall be fined not exceeding twenty dollars or be imprisoned not exceeding thirty days, or be both fined and imprisoned; but nothing herein contained shall be so construed as to authorize the taking of any fish from any pond or stream stocked with fish at the expense of the state.

SEC. 28. Every person who shall take any trout between the fifteenth day of July and the first day of April shall be fined twenty dollars for each offence, and every person who shall take or have in his or her possession any trout less than six inches in length at any time of the year shall be fined twenty dollars for each trout found in his or her possession, but nothing herein contained shall be so construed as to prohibit the taking and sale of trout artificially cultivated in private ponds at any season of the year: *Provided*, that all persons raising brook-trout artificially in private ponds shall use the initials of their names as a brand, which brand shall be put on every box of trout shipped or put on the market by them between the fifteenth of July and the first day of April in each year. All persons raising and disposing of trout as aforesaid shall cause their brand required herein to be registered by the secretary of state.

SEC. 29. All actions for violations of the provisions of the preceding two sections shall be commenced within thirty days after the commission of the offence.

SEC. 30. Every person who shall, by any seine or stop-net, or otherwise, obstruct the channel leading from the sea into Ward's pond, and up through said pond on each side of Watermelon, Gooseberry, or Larkin's islands, shall be fined not less than five dollars nor more than twenty dollars.

SEC. 31. Every person who shall erect any dam, weir, or other obstruction across Mill cove in Warwick, or from the mouth of said cove to the pond of fresh water that runs into said cove, or such streams as run into said pond, or who shall keep up any dam, or weir, or other obstruction therein made, and every owner or occupant of lands adjoining said Mill cove or the stream leading from said pond into said cove who shall permit any such obstruction to be erected on continued in or upon said cove or stream adjacent to his land, at any time between the first day of March and the first day of November, shall forfeit one hundred dollars for each offence.

SEC. 32. Every person who on Saturday or Sunday shall fish in said cove

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except with a hook and line, or who shall catch or hinder any alewives coming down said Mill cove or said stream, or shall therein at any time set any weir or device to prevent the passage of the fish, shall forfeit ten dollars for each offence: *Provided*, that nothing herein contained shall be so construed as to authorize fishing on Sunday.

SEC. 33. Every person who shall set or draw any seine or net in said Mill cove, or off from the mouth thereof to Long Meadow rocks, or from the mouth thereof to the pond of fresh water which empties into said cove, between the first day of March and the fifteenth day of June, or who shall take any alewives from said pond, or streams flowing into said pond, between the first day of March and the first day of November in any year, shall for each offence forfeit one hundred dollars and the boats, seines, and other apparatus used in the commission thereof: *Provided, however*, that nothing in this chapter shall be so construed as to prohibit any person from fishing for alewives in said cove, or stream running from said pond into said cove, with a bowed net not larger than twelve feet around the mouth of said net, on days other than those excepted in section thirty-two of this chapter.

SEC. 34. There shall be, between the first day of May and the first day of August, a weekly close-time extending from Saturday morning at sunrise to Monday morning at sunrise, during which time no fish of any description shall be taken by weirs, traps, or similar contrivances, from any of the waters of the coast-line of the state and Narragansett bay. If there be any weir, trap, or other stationary contrivances used for the purpose of catching or obstructing the passage of fish in that part thereof where the fish are usually taken, the netting at the mouth of the same shall be floated to the surface of the water so as to effectually close the mouth thereof during the weekly close-time, so that during said time the fish may have a free, unobstructed passage, and no device shall be placed in any part of said limits which shall tend to hinder such fish from running up the waters of such rivers. In case the inclosure where the fish are taken is furnished with a board floor, an opening three feet wide shall be made extending from the floor to the top of the weir, trap, or other contrivances: *Provided, however*, that nothing herein shall be so construed as to apply to the shad and herring fisheries in the tributaries of Narragansett bay.

SEC. 35. The Commissioners of Inland Fisheries shall have a general supervision of all matters relating to the subjects contained in sections eight, ten, twenty-six, twenty-seven, and thirty-four of this chapter, and may make all needful regulations to carry out the provisions of said sections, and shall from time to time examine all the weirs, traps, or other contrivances, with a view of carrying out such regulations as are most beneficial to the people of the state, and shall prosecute for the violation of such regulations or for the infringement

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of the provisions of any of said sections. They may co-operate with the fish commissioners of other states, and shall make an annual report to the general assembly of their doings, with such facts and suggestions in relation to the object for which they are appointed as they may deem proper. Said commissioners shall be allowed their actual disbursements made in the execution of this chapter.

SEC. 36. Every person who shall violate any of the regulations made by said commissioners under the authority of the provisions of the preceding section of this chapter, or who, during the close-time mentioned in section thirty-four, shall set any weir, trap, or contrivances contrary to such provisions, shall be fined not exceeding one hundred dollars or be imprisoned not exceeding three months, or both, in the discretion of the court before which the offender shall be tried.

SEC. 37. All forfeitures under this chapter shall, where there is no other provision made to the contrary, enure one-half thereof to the use of the town where the offence shall be committed and one-half thereof to the use of the person suing for the same.

CHAPTER 172.

Of the Fishery of Pawcatuck River.

SECTION 1. No weir or pound or other obstructions shall be erected or continued in the channel of Pawcatuck river, dividing the states of Rhode Island and Connecticut, so as to interfere with the main channel of said river, upon penalty of twenty dollars for the first offence, and seven dollars for every twenty hours or any less space of time any such weir or other obstruction shall be continued in the main channel of said river after the first offence.

SEC. 2. No weir or pound shall be erected or continued upon any flat or other part of the bottom of said river, eastward or westward of the aforesaid channel of said river, between the first day of June and the twentieth of March, annually, upon penalty of fourteen dollars for the first offence and seven dollars for every succeeding day such weir or pound shall be continued in said river, from the first day of June to the twentieth day of March, annually.

SEC. 3. No person shall fish with mesh or scoop nets in Pawcatuck river, or any of its branches, after sunset on Friday until sunrise on Monday in each week, from the twentieth day of March to the first day of June, annually, and no person shall use more than one net at a time upon penalty of five dollars for every offence.

SEC. 4. All penalties incurred for violation of any of the provisions of this

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chapter shall enure one-half thereof to the use of the complainant and one-half thereof to the use of the town where the offence is committed.

SEC. 5. The foregoing provisions of this chapter shall be considered as forming a compact with the state of Connecticut, from which the general assembly will not depart until the legislature of the state of Connecticut shall agree with the general assembly of this state to a repeal thereof, alterations therein, or additions thereto.

SEC. 6. If any owner of land adjoining Pawcatuck river in this state shall permit any weir, pound, or other obstruction to be erected or continued upon any flat or bottom of said river, whether done, erected, or continued by himself, servant, lessee, or any other person, by his privity or consent, such owner shall be liable for any such breach or violation of section two of this chapter in the same manner as though the same had been committed by such owner in person.

CHAPTER 174.

Of the Inland Fisheries.

SECTION 1. The governor shall appoint seven commissioners of inland fisheries, who shall hold their offices for three years and until their successors are appointed.

SEC. 2. The Commissioners of Inland Fisheries shall introduce, protect, and cultivate fish in the inland waters of the state, and may make all needful regulations for the protection of such fish, and shall prosecute for the violation of such regulations and of the laws of the state concerning inland fisheries. They may, in their discretion, from time to time make experiments in planting cultivating, propagating, and developing any and all kinds of shell fish; and for the purpose of so doing may from time to time take, hold, and occupy, to the exclusion of all others, in one or more parcels, any portions of the shores of the public waters of the state, or land within the state covered by tide-water at either high or low tide not within any harbor line, and which is not at the time of such taking under lease as a private and several oyster fishery: *Provided*, that the land so held and occupied at any one time shall not exceed three acres. Said commissioners upon taking such land shall forthwith give public notice thereof by advertisement in some newspaper in the county in which said land is situated, which advertisement shall contain a description of said land; they shall also forthwith notify the commissioners of shell fisheries of such taking and shall transmit to them a description of said land, and shall also take out or otherwise mark the bounds of said land. Said commissioners may make all

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needful regulations for the protection of the land so taken, and of all animal life and other property within the lines thereof, and shall prosecute the violations thereof.) They may co-operate with the fish commissioners of other states, and they shall make an annual report to the general assembly of their doings, with such facts and suggestions in relation to the object for which they were appointed as they may deem proper. Said commissioners, whenever complaint is made by them, or either of them, for a violation of any regulation made by them as aforesaid, or for violation of any of the provisions of this chapter or of chapters 171, 172, and 173, shall be not required to enter into recognizance on such complaint or become liable for costs thereon.

SEC. 3. The said commissioners shall cause a copy of any regulation made under the authority of the preceding section to be filed in the office of the town clerk of any town in which any waters stocked with fish, or land occupied for experiments under the authority of the preceding section and to which such regulations may apply, may be, and shall also cause a copy of such regulations to be advertised in some newspaper published in the same county.

SEC. 4. Every person who shall violate any of the regulations made by the commissioners of inland fisheries under the authority of the provisions of the preceding three sections, or who shall take any fish, fish-spawn, or any apparatus used in hatching or protecting fish, from any pond, lake, river, or stream stocked with or set apart by said commissioners, or by private parties, for the protection and cultivation of fish with the consent of the town council of the town where such cultivation is carried on, without the consent of such commissioners, or, if the cultivation of fish be carried on by a private party, without the consent of the person cultivating the same, or who shall trespass within the boundaries of any land which may be taken and occupied by said commissioners for their experiments in relation to shell-fish, authorized by section two of this chapter, shall be fined not exceeding three hundred dollars or be imprisoned not exceeding six months, or be both fined and imprisoned in the discretion of the court before which the offender shall be tried.

SEC. 5. Every person who shall catch any fish or shall use any seine for catching fish within half a mile from the mouth or outlet of any fishery set apart as is herein provided, and within any waters into which the waters of such fishery are let out, and every person who shall violate any of the provisions of sections seven, eight, and ten of this chapter, shall forfeit for the first offence the sum of fifty dollars, and for every subsequent offence shall forfeit one hundred dollars; and in addition to the penalties herein provided shall forfeit all the apparatus by him used in violation of the provisions of this section.

SEC. 6. Each of the commissioners of inland fisheries may, personally or by deputy, seize and remove, summarily if need be, all obstructions erected to

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hinder the passage of migrating fish, or which are illegally erected to obstruct or in any way to impede the growth and culture of fish.

SEC. 7. No person shall take or catch fish of any kind from any of the inland waters of the state, set apart by the commissioners of inland fisheries for the cultivation of fish, except at such times and in such manner as is hereinafter provided.

SEC. 8. The prohibition of the catching of fish by hook and line, from fisheries stocked as hereinbefore provided, shall extend and be continued for and during the term of three years from and after the time when such fishery was first established: *Provided, however*, that fish may be caught through the ice only, and with hook and hand-line only, in those ponds set apart for the cultivation of black bass, during the months of December, January, and February, until the expiration of the aforesaid term of three years.

SEC. 9. After the expiration of said three years no black bass shall be taken in any waters of this state, except Sneach pond in the town of Cumberland, and Moswansicut pond in the town of Scituate, between the first day of March and the first day of July in each year, nor at any time except by hook and line as aforesaid. Every person taking any black bass during the time aforesaid, or in any other manner except by hook and line, shall be fined fifteen dollars for each black bass so taken, and every person who shall take or have in his or her possession any black bass less than eight inches in length at any time of the year shall be fined fifteen dollars for each black bass found in his or her possession; and possession by any person of any black bass less than eight inches in length, or during the time aforenamed, shall be evidence that such black bass were taken in violation of this chapter; but nothing herein contained shall be so construed as to prohibit the taking and sale of black bass artificially cultivated in private ponds at any season of the year.

SEC. 10. After the expiration of said three years no fish shall be taken by any person from any waters legally set apart by said commissioners for the cultivation of shad or salmon, or within one mile of the outlet of the streams so set apart, except from and after the fifteenth day of April until the fifteenth day of July, or at any time except by hook and hand-line, or by not less than three-inch mess nets or seines.

SEC. 11. One-half of the fines and forfeitures recovered for violation of the provisions of this chapter shall accrue to the complainant and one-half thereof to the use of the state.

SEC. 12. The commissioners of inland fisheries may take fish from the fisheries hereinbefore referred to, for any purpose connected with fish culture or for scientific observation.

SEC. 13. Each of said commissioners may, in the discharge of his duties,

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enter upon and pass over private property without rendering himself liable in an action of trespass.

SEC. 14. The commissioners of inland fisheries shall be allowed their actual disbursements made in carrying into effect the provisions of this chapter.

CHAPTER 175.

General Provisions for the Protection of Fisheries.

SECTION 1. Every person who shall throw into or deposit in, or cause to be thrown into or to be deposited in, any of the public tide-waters of the state or upon the shores of any such tide-waters any fish-offal or any water impregnated with fish, unless the same be filtered in such manner as may be determined by the town council of the town wherein such deposit shall be made, and every person who shall cause any deleterious substance resulting from the smelting or manufacture of copper or from other manufactures, or from other sources, which is destructive to fish or which repels them from coming into the said public waters, or which shall do anything which tends to drive them therefrom, to be emptied, deposited, or run into the said public waters, shall forfeit one hundred dollars.

SEC. 2. Every vessel, craft, boat, or floating apparatus employed in the procuring of fish-oil, or in the dressing of bait for the mackerel fisheries, or the dressing of fish for other purposes, in violation of this chapter, shall be liable for any forfeiture and costs resulting from prosecution hereunder; and the same may be attached on the original writ and held, as other personal property attached may be held, to secure any judgment which may be recovered in any action brought to enforce any such forfeiture; and any person, upon view of any offence in violation of this chapter, may seize and detain any vessel, craft, boat, or floating apparatus, the same to be detained for a period not exceeding six hours.

SEC. 3. Every person who shall boil any menhaden fish, or press any fish for the purpose of extracting oil therefrom, on board of any vessel on any of the public tide-waters, shall be fined not exceeding fifty dollars.

SEC. 4. Any person who shall wilfully place any brush, trees, or limbs of trees in any of the waters of Charlestown pond shall be fined not more than twenty dollars nor less than five dollars for each offence; and all fines under this section shall enure one-half thereof to the use of the complainant and one-half thereof to the use of the town of Charlestown.

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PUBLIC LAWS.

CHAPTER 969.

AN ACT IN SUBSTITUTION OF CHAPTER 857 OF THE PUBLIC LAWS, PASSED AT THE JANUARY SESSION, A. D. 1901, ENTITLED "AN ACT FOR THE BETTER PROTECTION OF THE LOBSTER FISHERIES."

SECTION 1. Every person who catches, takes, or has in his or her possession any lobster less than nine inches in length, measuring from the end of the bone projecting from the head to the end of the bone of the middle flipper of the tail, the lobster extended on its back its natural length, and every person who has in his or her possession any cooked lobster less than eight and three-quarters inches in length, and every person who has in his or her possession any female lobster bearing eggs or from which the eggs have been brushed or removed, shall be fined five dollars for every such lobster; but a person catching or taking any such live lobster and immediately returning the same alive to the water from which taken shall not be subject to such fine. The possession of any such lobster, cooked or uncooked, not of the prescribed length, shall be *prima facie* evidence to convict.

SEC. 2. All lobster pots, cars, and other contrivances used for the catching or keeping of lobsters shall be plainly marked with the name or names of the owner or owners. And every person who shall not have his lobster pots, cars, or other contrivances so marked shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence. And all pots, cars, and other contrivances used contrary to the provisions of this section shall be seized by the officer engaged in the enforcement of this law, and said property shall be forfeited.

SEC. 3. There shall be, between the fifteenth day of November and the fifteenth day of April next succeeding, a close-time, during which time it shall be unlawful for any person to set or keep, or cause to be set or kept, within any of the waters of this state, any pots or nets for the catching of lobsters, or to take any lobsters during such close-time. Every person violating any of the provisions of this section shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

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SEC. 4. No person shall be allowed to set or keep, or cause to be set or kept, within any of the waters of the state, any pots or nets for the catching of lobsters who has not had his home and residence in this state for the period of one year next preceding the time of his catching such lobsters. Every person violating any of the provisions of this section shall be fined twenty dollars and be imprisoned not more than thirty days for each such offence.

SEC. 5. Every person, except the commissioners of inland fisheries and their deputies, who shall lift or raise any pot or net set for the catching of lobsters, without the permission of the owner or owners thereof, shall be fined ten dollars for each such offence.

SEC. 6. Every person who mutilates a lobster by severing its tail from its body, or has in his or her possession any such tail or tails of lobsters before such lobsters are cooked, shall be fined five dollars for each such offence; and in all prosecutions under this act the possession of any such tail or tails of uncooked lobsters shall be *prima facie* evidence to convict.

SEC. 7. The Commissioners of Inland Fisheries shall appoint at least two deputies, whose duties shall be the enforcing of the provisions of this act. Each of said deputies appointed as aforesaid shall be, by virtue of his office, a special constable, and as such deputy may, without warrants, arrest any person found violating any of the provisions of this act and detain such person for prosecution not exceeding twenty-four hours. Said deputies shall not be required to enter into recognizance or become liable for costs.

SEC. 8. For the purpose of enforcing the provisions relative to the protection of lobsters, the Commissioners of Inland Fisheries and their appointed deputies may search in suspected places, or upon any boat or vessel that they may believe is used in the catching or transporting of lobsters, and may seize and remove lobsters taken, held, or offered for sale in violation of the provisions of this act.

SEC. 9. Fines incurred under any of the provisions of this act shall enure one-half thereof to the use of the complainant and one-half thereof to the use of the state.

SEC. 10. The several district courts shall have concurrent jurisdiction with the common pleas division of the supreme court over all offences under this act, and to the full extent of the penalties therein specified; parties defendant, however, having the same right to appeal from the sentences of said district courts as is now provided by law in other criminal cases.

SEC. 11. Sections eight, nine, and ten of Chapter 171 of the General Laws, entitled "Of certain fisheries," and also Chapters 316 and 857 of the Public Laws, and all acts and parts of acts inconsistent herewith, are hereby repealed.

SEC. 12. This act shall take effect upon and after its passage.

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CHAPTER 1006.

AN ACT IN RELATION TO TRESPASS ON LAND.

SECTION 1. Whoever shall enter upon the land of another for the purpose of either shooting, trapping, or fishing when the same shall be conspicuously posted by the owner or occupant with notices that shooting, trapping, or fishing is prohibited thereon, or whoever shall without right mutilate, destroy, or remove any such notice, shall be fined not exceeding twenty dollars.

SEC. 2. All acts or parts of acts inconsistent herewith are hereby repealed, and this act shall take effect July 1st, 1902.

CHAPTER 1132.

AN ACT PROHIBITING THE TAKING OF FISH OF ANY SPECIES FROM THE WATERS OF GORTON'S LAKE, SO-CALLED, IN THE TOWN OF WARWICK, R. I., BEFORE APRIL 1, 1906.

SECTION 1. Every person who shall take fish of any species from the waters of Gorton's Lake, so-called, in the town of Warwick, before the first day of April, A. D. 1906, shall be fined not exceeding one dollar for the first offence, and not to exceed ten dollars for each subsequent offence.

SEC. 2. This act shall take effect immediately.

CHAPTER 1225.

AN ACT FOR THE PROTECTION OF PICKEREL AND IN ADDITION TO CHAPTER 171 OF THE GENERAL LAWS, ENTITLED "OF CERTAIN FISHERIES."

SECTION 1. Every person who catches or takes from any of the waters of this state or has in his or her possession any pickerel less than ten inches in length shall be fined five dollars for each such offence; but any person catching or taking any pickerel less than ten inches from any of the waters of this state and immediately returning the same alive to the water from which taken shall not be subject to such fine. The possession of any such pickerel not of the prescribed length shall be *prima facie* evidence to convict.

SEC. 2. This act shall take effect upon and after its passage.

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APPENDIX C.

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TITLES OF SPECIAL PAPERS PUBLISHED IN THE ANNUAL REPORTS OF THE COMMISSIONERS OF INLAND FISHERIES OF THE STATE OF RHODE ISLAND.

1. Mead, A. D. The Starfish. (First paper.) Twenty-eighth Annual Report. 1898.
2. Mead, A. D. The Starfish. (Second paper.) Twenty-ninth Annual Report. 1899.
3. Tower, R. W. Improvements in the Methods of Preparation of Fish for Shippment. Twenty-ninth Annual Report. 1899.
4. Bumpus, H. C. The Extension of the Commercial Fisheries of the State. Twenty-ninth Annual Report. 1899.
5. Kellogg, J. L. The Life History of the Common Clam. Twenty-ninth Annual Report. 1899.
6. Mason, N. R. A List of the Diatoms Found in the Water over the Clam, Mussel, and Oyster Beds in Narragansett Bay. Thirtieth Annual Report. 1900.
7. Mead, A. D. Observations on the Soft-shell Clam. Thirtieth Annual Report. 1900.
8. Mead, A. D. Observations on the Soft-shell Clam. (Second paper.) Thirty-first Annual Report. 1901.
9. Risser, J. R.H abits and Life History of the Scallop. Thirty-first Annual Report. 1901.
10. Mead, A. D. Habits and Growth of Young Lobsters and Experiments in Lobster Culture. Thirty-first Annual Report. 1901.
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12. Mead, A. D. Habits and Growth of Young Lobsters and Experiments in Lobster Culture. (Second paper.) Thirty-second Annual Report. 1902.
13. Mead, A. D. and Williams, L. W. Habits and Growth of the Lobster and Experiments in Lobster Culture. (Third paper.) Thirty-third Annual Report. 1903.
14. Mead, A. D. and Barnes, E. W. Observations on the Soft-shell Clam. (Fourth paper.) Thirty-third Annual Report. 1903.
15. Mead, A. D. and Barnes, E. W. Observations on the Soft-shell Clam. (Fifth paper.) Thirty-fourth Annual Report. 1904.

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16. BARNES, E. W. Preliminary Inquiry into the Natural History of the Paddler Crab (Callinectes hastatus) with Remarks on the Soft-shell Crab Industry of Rhode Island. Thirty-fourth Annual Report. 1904.

17. MEAD, A. D. Experiments in Lobster Culture. (Fourth paper.) Thirty-fourth Annual Report. 1904.

18. MEAD, A. D. Experiments in Lobster Culture. (Fifth paper.) Thirty-fifth Annual Report. 1905.

19. HADLEY, P. B. Changes in Form and Color in Successive Stages of the American Lobster. Thirty-fifth Annual Report. 1905.

20. EMMEL, V. E. The Regeneration of Lost Parts in the Lobster. Thirty-fifth Annual Report. 1905.

21. TRACY, H. C. A List of the Fishes of Rhode Island. Plates I–XII. Thirty-sixth Annual Report. 1906.

22. TRACY, H. C. The Common Fishes of the Herring Family. Plates VII–XII. Thirty-sixth Annual Report. 1906.

23. BARNES, E. W. Methods of Protecting and Propagating the Lobster, with a Brief Outline of its Natural History. Plates XIII–XXVI and XXVIII, XXXI, XXXII, XXXVI. Thirty-sixth Annual Report. 1906.

24. HADLEY, P. B. Regarding the Rate of Growth of the American Lobster. Plates XXVI–XXXVII, and XL. Thirty-sixth Annual Report. 1906.

25. HADLEY, P. B. Observations on Some Influences of Light upon the Larval and Early Adolescent Stages of Homarus Americanus. Plates XXXVIII–XL. Thirty-sixth Annual Report. 1906.

27. EMMEL, V. E. The Relation of Regeneration to the Molting Process in the Lobster. Plates XL–XLI. Thirty-sixth Annual Report. 1906.

28. TRACY, H. C. The Fishes of Rhode Island, III: The Fishes of the Mackerel Family. Thirty-seventh Annual Report.

29. TRACY, H. C. A List of Rare Fishes taken in Rhode Island in the year 1906. Thirty-seventh Annual Report.

30. WILLIAMS, DR. LEONARD W. List of the Rhode Island Copepoda, Phyllopoda, and Ostracoda, with new species of Copepoda. Thirty-seventh Annual Report.

31. EMMEL, V. E. Regenerated and Abnormal Appendages in the Lobster. Thirty-seventh Annual Report.

32. WILLIAMS, L. W. The Stomach of the Lobster and the Food of Larval Lobsters. Thirty-seventh Annual Report.

33. HADLEY, P. B. Regarding the Behavior of the Larval and Early Adolescent Stages of the American Lobster. Thirty-seventh Annual Report.

34. BARNES, E. W. Lobster Culture at Wickford, Rhode Island, in 1906. Thirty-seventh Annual Report.

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ANNUAL STATEMENT

EXHIBITING THE CONDITION
OF THE

State Banks, Savings Banks, Institutions for Savings, and Trust Companies of Rhode Island,

ON

JUNE 30, 1907.

ALSO,

STATEMENT OF THE BUILDING AND LOAN ASSOCIATION

Reporting on December 31, 1906.

Prepared by CHAS. C. GRAY, State Auditor and Insurance Commissioner.

PROVIDENCE:
E. L. FREEMAN COMPANY, PRINTERS TO THE STATE.
1907.

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REPORT

OF THE

STATE AUDITOR AND INSURANCE COMMISSIONER

ON THE CONDITION OF THE

STATE BANKS, SAVINGS BANKS, INSTITUTIONS FOR SAVINGS, TRUST COMPANIES,

AND

BUILDING AND LOAN ASSOCIATIONS.

OFFICE OF THE STATE AUDITOR AND INSURANCE COMMISSIONER.

PROVIDENCE, July 30, 1907.

To the Honorable the General Assembly of Rhode Island:

I submit herewith an abstract of the returns of State banks, savings banks, institutions for savings, and trust companies, reporting to the State Auditor and Insurance Commissioner on June 29, 1907, in accordance with the provisions of Chapter 851 of the Public Laws, passed March 29, 1901, and building and loan associations reporting to the Insurance Commissioner on December 31, 1906, in accordance with the provisions of section 15, Chapter 188 of the General Laws.

STATE BANKS.

Four State banks, including the "State Bank" in process of liquidation, filed returns showing their financial condition on June 30th.

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The capital stock of these four banks amounts to $472,225; their total resources amount to $2,322,817.45, or $448,708.24 more than the total in 1906.

Tables 1, 2, and 3 contain statistics compiled from the returns of these institutions.

SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.

Twenty-eight savings banks and institutions for savings filed returns. Of these eleven are in process of liquidation.

The Coddington Savings Bank, of Newport, reports as follows:

"The Coddington Savings Bank paid its first and final dividend in liquidation May 3, 1907, and is now out of business. Rate of dividend, 109 and 21-100 per cent."

The total resources of this class of institutions amount to $72,366,630.73, or $2,408,994.26 more than on June 30, 1906.

Deposits show an increase of $3,065,265.66 over the previous year, notwithstanding the returns show a decrease of 889 in the number of depositors.

The average interest paid upon deposits, exclusive of dividends paid by banks in liquidation, was four per cent., same as last year.

Tables 4 to 10, inclusive, contain statistics relative to these banks in condensed form.

TRUST COMPANIES.

Twenty-one trust companies filed returns. Of these, the Manufacturers Trust Company, the Mercantile Trust Company, and the Rhode Island Mortgage and Trust Company, all of Providence, are in process of liquidation.

The Merchants Trust Company, of Providence, incorporated June 12, 1903, reports as follows:

"The Merchants Trust Company is not at present actively engaged in the prosecution of the business for which it was organized,

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and has no assets other than its corporate franchise, and no indebtedness or liability other than its capital stock."

The Warren Trust Company, of Warren, incorporated in May, 1891, reports as follows:

"The Warren Trust Company is not at present actively engaged in the prosecution of the business for which it was organized, and has no assets other than its corporate franchise, and no indebtedness or liability other than its capital stock."

The William Ellery Trust Company, of Newport, incorporated April 19, 1906, reports that it has organized, and that $25,000 of its capital stock has been paid in, but it has not yet started business.

The resources of this class of companies, exclusive of the Merchants Trust Company, the Warren Trust Company, and the William Ellery Trust Company, amount to $128,933,153.42, or $9,209.72 less than on June 30, 1906.

The deposits in participation or savings account amount to $63,649,542.23—an increase of $1,909,207.83 over the figures for 1906.

The returns show that the number of depositors in the participation or savings accounts of the trust companies has decreased by 4,728, leaving the number at 101,559.

The average rate of dividends paid to this class of depositors by the trust companies was 3.64 + per cent.

Tables numbers 11 to 17, inclusive, contain the figures of all the trust companies condensed.

SAVINGS DEPOSITS.

The whole number of depositors in the savings banks and institutions for savings is 122,319. The amount of their deposits, as herein stated, is $66,391,173.64.

The whole number of depositors in the participation or savings departments of the trust companies is 101,559, and the amount of their deposits is $63,649,542.23.

Adding these figures for the purpose of ascertaining the number

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of savings depositors in the State, as well as their aggregate deposits, we find that they number 223,878, and their deposits amount to $130,040,715.87, representing an increase, during the year, amounting to $4,974,473.49, and a per capita saving of $10.32.

The average amount to the credit of each depositor in our savings banks is $542.77, and in the savings or participation deposits of our trust companies, $626.72, making an average amount to the credit of each depositor in the State of $1,169.49.

The average deposits in the savings banks to each person in the State amount to $138.29, and in the savings or participation account of the trust companies to $132.54, making the per capita savings deposits in the State $270.83 on June 29th.

BUILDING AND LOAN ASSOCIATIONS.

The statement of the Old Colony Coöperative Bank, of Providence, the only institution of this class reporting to this department on December 31, 1906, will be found in this volume.

Respectfully submitted,

CHAS. C. GRAY,

State Auditor and Insurance Commissioner.

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STATEMENT OF STATE BANKS.

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HIGH STREET BANK, PROVIDENCE.

[Incorporated 1828.]

ARTHUR E. AUSTIN, *President.* E. ALLEN, *Secretary and Cashier.*

DIRECTORS.

James B. Paine,	Lester S. Hill,	William H. Waite.
Henry A. Grimwood,	Englehart C. Ostby,	Nathan B. Barton.
Dutee Arnold,	Elijah Allen.	

RESOURCES.

Debts due from directors	$29,100 00
Debts due from other stockholders	13,900 00
Debts due from all others	515,185 63
Specie actually in bank	8,221 94
Bills of other banks	142,637 00
Checks and cash items	10,135 39
Deposits in other banks	128,366 57
Real estate	45,000 00
Other property	3,000 00
Deposit with U. S. Treasurer	5,000 00
Total resources	$900,546 53

LIABILITIES.

Capital actually paid in	$120,000 00
Deposits on interest	321,704 24
Deposits not on interest	304,058 64
Debts due to other banks	50,000 00
Net profits on hand	104,783 65
Total liabilities	$900,546 53

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MISCELLANEOUS.

Par value of shares	$50 00
Amount of last dividend	4,800 00
Date of last dividend	Feb. 4, 1907.
Rate per cent. of last dividend	8 per cent. per annum.
Reserved profits at the time of last dividend	$95,970 93
Debts due and not paid	4,507 28
Amount of suspended paper considered bad or doubtful.	4,507 28
Amount loaned on pledges of stock in the bank	33,800 00
Amount of stock held as collateral security for loans, (Schedule C)	35,780 00
Largest amount of indebtedness of any one person or firm	40,000 00

SCHEDULE C.

Stocks held as Collateral Security for Loans.

	Par Value.	*Loaned thereon.*
479 shares Atlantic National Bank, Providence	$23,950 00	$22,000 00
12 " Providence & Worcester R. R. Co.	1,200 00	8,000 00
1063 " Improved Seamless Wire Co.	10,630 00	7,500 00
	$35,780 00	$37,500 00

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NEW ENGLAND COMMERCIAL BANK, NEWPORT.

[Incorporated 1818.]

JOSEPH P. COTTON, *President.* N. UNDERWOOD, *Cashier.*

DIRECTORS.

Nicholas Underwood, Elijah Anthony, John Allan.
Harwood E. Read, Joseph P. Cotton,

RESOURCES.

Debts due from directors	$6,027 46
Debts due from other stockholders	1,170 00
Debts due from all others	48,587 51
Specie actually in bank	2,316 75
Bills of other banks	8,758 56
Deposits in other banks	13,192 89
Its own stock held by the bank	20,220 00
Bonds owned by bank, (Schedule B)	31,412 50
Real estate	11,562 26
Furniture and fixtures	1,344 60
Total resources	$144,592 53

LIABILITIES.

Capital actually paid in	$75,000 00
Deposits not on interest	40,853 81
Debts due to other banks	20,000 00
Dividends unpaid	281 25
Net profits on hand	8,457 47
Total liabilities	$144,592 53

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MISCELLANEOUS.

Par value of shares	$50 00
Amount of last dividend	1,875 00
Date of last dividend	Jan. 2, 1907.
Rate per cent. of last dividend	2½ per cent. 6 mos.
Reserved profits at the time of last dividend	$6,512 46
Debts due and not paid	4,080 61
Amount loaned on pledges of stock in the bank	5,122 46
Amount of stock held as collateral security for loans (Schedule C)	1,150 00
Largest amount of indebtedness of any one person or firm	12,405 10

SCHEDULE B.

BONDS OWNED BY THE BANK.

	Cost to Bank.	*Par Value.*	*Market Value.*
Boston, Mass., reg. water loan 4s	$15,000 00	$15,000 00	$15,000 00
Morris county, Kansas, 6s	1,012 50	1,000 00	1,000 00
Franklin county, Kansas, 6s	2,050 00	2,000 00	2,000 00
Leavenworth county, Kansas, 6s	1,020 00	1,000 00	1,000 00
Cleveland, Lorain, and Wheeling R. R. Co. first 5s	6,000 00	6,000 00	6,585 00
Ballard, Wash., 6s	6,330 00	6,000 00	6,330 00
	$31,412 50	$31,000 00	$31,915 00

SCHEDULE C.

Stocks held as Collateral Security for Loans.

	Par Value	*Market Value.*	*Loaned Thereon.*
3 shares Aquidneck National Bank, Newport, R. I.	$150 00	$180 00	$150 00
10 " Jamestown, R. I. Water & Light Company	1,000 00	800 00	175 00
	$1,150 00	$980 00	$325 00

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STATE BANK, PROVIDENCE.

(IN LIQUIDATION).

[Incorporated May, 1850.]

JAMES B. ARNOLD, *President.* H. B. DEAN, *Cashier.*

DIRECTORS.

James B. Arnold,	Hiram Kendall.	H. B. Dean.
Benj. F. Arnold,	Edward Olney,	

RESOURCES.

Cash on hand	$562 89
Deposits in other banks	78 96
Profit and loss	76,876 37
Total resources	$77,518 22

LIABILITIES.

Capital actually paid in	$77,225 00
Deposits in liquidation	79 99
Deposits not on interest	213 23
Total liabilities	$77,518 22

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WESTMINSTER BANK, PROVIDENCE.

[Incorporated May, 1854.]

ARNOLD B. CHACE, *President.* WILLIAM C. ANGELL, *Cashier.*

DIRECTORS.

Arnold B. Chase,	Frederick A. Ballou,	William C. Angell,
George A. Jepherson,	Joseph P. Burlingame,	William E. Bowen.
	Arnold B. Chase, Jr.,	

RESOURCES.

Debts due from directors	$53,080 00
Debts due from other stockholders	19,000 00
Debts due from all others	959,053 50
Specie actually in bank	6,351 14
Bills of other banks, and cash items	73,733 02
Deposits in other banks	62,823 28
Its own stock held by the bank	57 50
Stock in other banks (Schedule A)	8,355 00
Other stocks owned by bank (Schedule B)	14,100 00
Expense account	3,606 73
Total resources	$1,200,160 17

LIABILITIES.

Capital actually paid in	$200,000 00
Deposits on interest	556,973 90
Deposits not on interest	242,768 44
Debts due to other banks	100,000 00
Dividends unpaid	1,329 15
Net profits on hand	99,088 68
Total liabilities	$1,200,160 17

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MISCELLANEOUS.

Par value of shares	$50 00
Amount of last dividend	6,000 00
Date of last dividend	May 6, 1907.
Rate per cent. of last dividend	6 per cent.
Reserved profits at the time of last dividend	$84,056 02
Debts due and not paid	27,337 90
Amount of suspended paper considered bad or doubtful	1,500 00
Amount loaned on pledges of stock in the bank	85,114 00
Amount of stock held as collateral security for loans (Schedule C)	126,236 00
Largest amount of indebtedness of any one person or firm	37,795 13

SCHEDULE A.

STOCKS IN OTHER BANKS.

	Cost to Bank.	*Par Value.*	*Market Value.*
30 shares Industrial Trust Co., Prov.	$8,355 00	$3,000 00	$8,250 00

SCHEDULE B.

OTHER STOCKS OWNED BY THE BANK.

	Cost to Bank.	*Par Value.*	*Market Value.*
12 shares Troy Cotton & Woolen Mfg. Co.	$14,100 00	$6,000 00	$19,500 00

SCHEDULE C.

Stocks held as Collateral Security for Loans.

Description.	*Par Value.*	*Market Value.*	*Loaned Thereon.*
10 shares Atlantic National Bank, Providence	$500 00	$900 00	$500
1 bond Northern Pacific Railroad.	1,000 00	930 00	400 00
10 shares United Traction & Electric Company	1,000 00	1,000 00	300 00
108 " Providence Land & Wharf Company	10,800 00	3,000 00	2,434 00
6 " New York, New Haven, & Hartford R. R.	600 00	966 00	1,480 00
6 " The Pullman Company	600 00	972 00	

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		Par Value.	*Market Value.*	*Loaned Thereon.*
15 shares	Illinois Central	1,500 00	2,160 00	
20 "	Utah Consolidated mining Company	100 00	800 00	2,500 00
1 "	Industrial Trust Company, Providence	100 00	275 00	250 00
36 "	Narragansett Electric Light Company	1,800 00	3,276 00	1,850 00
1 bond	East St. Louis & Suburban Company	1,000 00	970 00	700 00
5 bonds	The Central R. R. Co. of New Jersey	5,000 00	6,250 00	
5 "	Pittsburg, Binghamton & Eastern R. R. Co	5,000 00	4,825 00	10,000 00
20 "	Pennsylvania R. R. Co	1,000 00	1,220 00	
5 bonds	The Central R. R. of New Jersey	5,000 00	6,250 00	
8 "	Sedalia Light & Traction Company	8,000 00	7,680 00	10,000 00
10 shares	Pennsylvania R. R. Co	500 00	610 00	
50 "	United States Steel Corporation (common)	5,000 00	1,750 00	
25 "	American Woolen Company (preferred)	2,500 00	2,475 00	2,300 00
1 bond	Rochester, Syracuse, & Eastern R. R. Co	1,000 00	970 00	850 00
6 "	Old Colony Co-operative Bank	600 00	600 00	300 00
1 bond	Westchester Traction Company	1,000 00	870 00	500 00
10 shares	Nicholson File Company	1,000 00	2,270 00	1,750 00
21 "	Narragansett Electric Light Company	1,050 00	1,911 00	1,800 00
4 "	Nicholson File Co	400 00	908 00	
15 "	Providence - Washington Insurance Company	750 00	1,050 00	1,300 00
25 "	Merchants' National Bank, Providence	1,250 00	1,875 00	1,500 00
5 "	Nicholson File Company	500 00	1,135 00	1,050 00
40 "	Pennsylvania R. R. Co	2,000 00	2,440 00	2,000 00
30 "	General Fire Extinguisher Company	3,000 00	7,500 00	3,000 00
100 "	General Fire Extinguisher Company	10,000 00	25,000 00	3,300 00
2 "	American Screw Company.	200 00	336 00	
20 "	United Traction & Electric Company	2,000 00	2,020 00	2,000 00
50 "	American Screw Company.	5,000 00	8,400 00	8,175 00

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		Par Value.	*Market Value.*	*Loaned Thereon.*
50 shares	American Screw Company.	5,000 00	8,400 00	8,175 00
20 "	American Screw Company.	2,000 00	3,360 00	2,125 00
9 "	Arnold Block Estate.....	900 00	900 00	700 00
5 "	Central Real Estate Company.....	500 00	425 00	250 00
1 bond	Central Union Telephone Company.....	1,000 00	1,000 00	1,250 00
1 "	Atchison, Topeka & Sante Fé R. R. Co.....	500 00	490 00	
3 "	Bonds Central Union Telephone Company.....	3,000 00	3,000 00	2,500 00
28 shares	Providence - Washington Insurance Company...	1,400 00	1,960 00	1,500 00
5 bonds	Denver Union Water Company.....	5,000 00	4,800 00	3,000 00
10 "	American Screw Company.	1,000 00	1,680 00	100 00
2 bonds	Rochester, Syracuse & Eastern R. R. Company.	2,000 00	1,900 00	1,000 00
23 shares	Central Real Estate Company.....	2,300 00	1,955 00	1,600 00
20 "	Fall River National Bank.	2,000 00	2,700 00	2,000 00
9 "	National Bank of Commerce.....	450 00	567 00	450 00
5 "	United Traction Electric Company.....	500 00	505 00	225 00
		$108,300 00	$126,236 00	$85,114 00

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STATEMENTS

OF

SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.

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ASHAWAY SAVINGS BANK, ASHAWAY.

[Incorporated 1871.]

ALEXANDER B. BRIGGS, *President.*

JAMES N. LEWIS, *Vice-President.*

HORACE L. CRANDALL, *Secretary and Treasurer.*

DIRECTORS.

Alexander B. Briggs,	Chas. W. Clarke,	James W. Murphy,
James N. Lewis,	Leverett A. Briggs,	Horace L. Crandall.
	Frank Hill,	

RESOURCES.

Cash on hand,.....	$652 96
Due from banks, bankers, and trust companies.....	274 00
Mortgages on real estate.....	31,433 50
Stocks.....	8,200 00
Bonds.....	6,250 00
	$46,810 46

LIABILITIES.

Amount of deposits.....	$42,637 22
Amount of profits on hand.....	4,173 24
	$46,810 46

MISCELLANEOUS.

Whole number of depositors.....	258
" " " " $500 and under $1,000...	16
" " " " $1,000 and upwards.....	8
Largest amount due any one depositor.....	$3,394 22
Amount of annual dividend.....	1,711 08

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Rate per cent. of annual dividend	4 per cent.
Amount of last dividend	$866 22
Date of last dividend	Jan. 1, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	3½ per cent.
Amount of reserved profits at time of last dividend	$3,226 45

Amount loaned on mortgages in other states:

Iowa	$1,800 00
Tennessee	862 50
Connecticut	775 00
	$3,437 50

STOCKS HELD BY THE BANK.

BANK.	*Par Value.*
Ashaway National	$8,200 00

BONDS HELD BY THE BANK.

RAILROAD.	*Par Value.*
Manistee, Filer City and East Lake	$1,250 00
Des Moines, Iowa Falls and Northern	1,000 00
Guayaquil and Quito	4,000 00
	$6,250 00

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CENTREVILLE SAVINGS BANK, CENTREVILLE.

[Incorporated May 31, 1888.]

CHARLES DUKE, *President.*

THOMAS W. D. CLARKE, *Secretary and Treasurer.*

DIRECTORS.

Charles Duke,	Geo. B. Waterhouse,	James J. Potter,
Moses Fifield,	Benj. F. Waterhouse,	Robert B. Treat.
Albert G. Whitman,	Thos. W. D. Clarke,	

RESOURCES.

Mortgages on real estate	$322,500 00
Stocks	72,972 00
Bonds	48,225 00
Loans on personal security	79,455 00
Expense account	97 26
	$523,249 26

LIABILITIES.

Amount of deposits	$474,365 10
Amount of profits on hand	42,453 96
Profits and loss (income account)	3,209 73
Due Centreville National Bank	3,220 47
	$523,249 26

MISCELLANEOUS.

Whole number of depositors	1,464
" " " " $500 and under $1,000	135
" " " " $1,000 and upward	106
Largest amount due any one depositor	$16,365 90
Amount of annual dividend	17,721 84

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Rate per cent. of annual dividend	4 per cent.
Amount of last dividend	$8,756 09
Date of last dividend	May 25, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$42,453 96

STOCKS HELD BY THE BANK.

	Cost to Bank.
100 shares Pawtuxet Valley Water Company	$5,000 00
147 " Centreville National Bank	7,350 00
600 " United States Steel	60,622 00
	$72,972 00

BONDS HELD BY THE BANK.

	Cost to Bank.
Pittsburg, Binghamton and Eastern 5's	$7,950 00
Burlington Railway and Light Company	2,925 00
Haverhill and Amesbury Street Railway	5,000 00
Hudson River Electric	10,000 00
Manistee and Filer City	7,500 00
	$33,375 00

MISCELLANEOUS.

	Cost to Bank.
Fairmont Coal Company	$4,900 00
St. Joseph Water Company	2,000 00
Savannah Electric Company	1,950 00
Colorado Springs Electric Company	3,000 00
Oneonta Light and Power Company	3,000 00
	$14,850 00

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CITIZENS SAVINGS BANK, PROVIDENCE.

[Incorporated 1871.]

JAMES B. PAINE, *President.* ARTHUR E. AUSTIN, *Vice-President.*

ELIJAH ALLEN, *Secretary and Treasurer.*

DIRECTORS.

Lester S. Hill,	Charles Law,	Charles F. Irons,
Englehardt C. Ostby,	Daniel P. Williams,	Ezra K. Perkins.
William A. Wilkinson,	James S. Kenyon,	

RESOURCES.

Cash balance deposited in High street bank	$169,062 44
Due from banks	600,169 97
Call loans to banks and trust companies	317,000 00
Mortgages on real estate	4,000,080 00
Stocks	28,400 00
Bonds	2,755,000 00
Other real estate	28,092 61
City and town notes	2,061,000 00
	$9,958,805 02

LIABILITIES.

Amount of deposits	$9,380,023 47
Amount of profits on hand	578,781 55
	$9,958,805 02

MISCELLANEOUS.

Whole number of depositors	12,537
" " " " $500 and under $1,000	1,785
" " " " $1,000 and upwards	3,097

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Largest amount due any depositor	$50,000 00
Amount of annual dividend	351,228 55
Rate per cent. of annual dividend	4 per cent.
Amount of last dividend	$178,284 07
Date of last dividend	Jan. 16, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$361,442 37

STOCKS HELD BY THE BANK.

BANK.	*Par Value.*
401 shares High Street	$20,050 00
167 " National Bank of Commerce	8,350 00
	$28,400 00

BONDS HELD BY THE BANK.

MUNICIPAL.	*Par Value.*
Pawtucket 4s, 1923	$100,000 00
New York City revenue 4s, 1907	100,000 00
East Providence 4s, 1933, 1943	46,000 00
Council Bluffs, Ia., 4½s, 1915	40,000 00
Lorain, Ohio, 5s, 1915–1923	47,000 00
	$333,000 00

RAILROAD.	
Cleveland, Lorain and Wheeling 5s, 1933	$100 000 00
United Traction and Electric Company 5s, 1923	100,000 00
Atlantic and Birmingham 5s, 1934	50,000 00
Columbus, Buckeye Lake and Newark 5s, 1921	50,000 00
Columbus Street 5s, 1923	50,000 00
Haverhill and Amesbury Street 5s, 1912	50,000 00
Indiana 5s, 1930	50,000 00
Metropolitan Street, Kansas City, Mo., 5s, 1910	50,000 00
Topeka 5s, 1930	50,000. 00
Indianapolis Northern Traction Company 5s, 1932	50,000 00
Danville, Ill., Street Railway and Light Company 5s, 1913–1922	50,000 00
Cicero and Proviso Street, Chicago 5s, 1915	50,000 00
New Haven and West Haven Horse Railway 5s, 1912	50,000 00
Milwaukee Electric Railway and Light Company 5s, 1926	50,000 00
Detroit Street 5s, 1916	50,000 00
Pennsylvania and Mahoning Valley 5s, 1922	50,000 00

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Grand Rapids 5s, 1916	$50,000 00
Auburn and Syracuse Electric Street 5s, 1942	50,000 00
Indianapolis and Eastern Street 5s, 1927	50,000 00
Berkshire, Mass., Street 5s, 1922	50,000 00
Cleveland Electric 5s, 1913	50,000 00
Northern Ohio Traction Company 5s, 1919	50,000 00
Central Market Street, Columbus, Ohio, 5s, 1922	50,000 00
Akron, Bedford and Cleveland 5s, 1915	35,000 00
Detroit United 4½s, 1932	50,000 00
Lehigh Valley, guaranteed 4½s, 1940	50,000 00
	$1,385,000 00

MISCELLANEOUS.

Harrisburg Light, Heat and Power Company 5s, 1924	$75,000 00
Hudson River Electric Power Company 5s, 1944	50,000 00
Union Electric Light and Power Company, St. Louis, 5s, 1932	50,000 00
Burlington, Vt., Gas Light Company 5s, 1955	50,000 00
St. Paul Gas Light Company 5s, 1944	50,000 00
Evansville, Ind., Gas and Electric Power Company 5s, 1932	50,000 00
Rochester Electric Company 5s, 1942	50,000 00
Chicago Suburban Water and Light Company 5s, 1949	50,000 00
New York Gas and Electric Company 5s, 1950	50,000 00
Utica Light and Electric Company 5s, 1950	50,000 00
Quincy, Ill., Gas and Electric Company 5s, 1926	50,000 00
United Gas and Electric Company, Jeffersonville, Ind., 5s, 1912–1940	50,000 00
People's Gas, Light and Coke Company, Chicago, Ill., 5s, 1947	50,000 00
Syracuse Gas Company 5s, 1946	50,000 00
Memphis Light and Power Company 5s, 1931	50,000 00
Cincinnati Edison Company 5s, 1917	50,000 00
Detroit Edison Company 5s, 1913	50,000 00
Minneapolis General Electric Company 6s, 1908	37,000 00
Charlotte, N. C., Light and Power Company 5s, 1929	25,000 00
Michigan State Telephone Company 5s, 1928	50,000 00
Central Telephone Company 5s, 1919	50,000 00
	$1,037,000 00

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CODDINGTON SAVINGS BANK, NEWPORT.

(IN LIQUIDATION.)

D. F. ESTERBROOKS, Treasurer.

The Coddington Savings Bank paid its first and final dividend in liquidation, of 109.21 per cent., and closed up its business on May 3rd, 1907.

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FRANKLIN SAVINGS BANK, PAWTUCKET.

(IN LIQUIDATION.)

[Incorporated 1857.]

A. A. MANN, *President.* S. A. JENCKS, *Vice-President.*

J. F. BROWNING, *Secretary and Treasurer.*

DIRECTORS.

A. A. Mann,	C. C. Burnham,	N. H. Colwell,
S. A. Jencks,	H. A. Stearns,	A. Sutcliffe.
	F. A. Barker,	

RESOURCES.

Due from banks, bankers, and trust companies.....	$4,519 29

LIABILITIES.

Amount of deposits.....	$4,519 29

MISCELLANEOUS.

Whole number of depositors.....	39
" " " " $500 and under $1,000..	1
" " " " $1,000 and upwards.....	1
Largest amount due any one depositor.....	$3,004 04
Amount of last dividend.....	161,578 89
Date of last dividend.....	Dec. 4, 1901.
Rate per cent. of last dividend.....	9 per cent.

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HOPKINTON SAVINGS BANK, HOPE VALLEY.

(IN LIQUIDATION.)

[Incorporated July 18, 1870.]

HENRY C. NICHOLS, *President.*

BENJ. P. LANGWORTHY and WALTER E. BROWNING, *Vice-Presidents.*

SILAS R. RICHMOND, *Secretary and Treasurer.*

DIRECTORS.

Thos. B. Segar,	William F. Joslin,	Ernest L. Crandall,
George E. Hoxsie,	N. Henry Lanphear,	Herbert E. Lewis,
Martin G. Parks.	John J. Green,	Silas R. Richmond.
	Walter Rogers.	

RESOURCES.

Due from banks, bankers, and trust companies	$4,333 24
Profit and loss	4,825 00
	$9,158 24

LIABILITIES.

Amount of deposits	$9,158 24

MISCELLANEOUS.

Whole number of depositors	210
Largest amount due any one depositor	$222 27
Amount of last dividend	17,142 38
Date of last dividend	Oct. 8, 1906.
Rate per cent. of last dividend in liquidation	15¼ per cent.

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ISLAND SAVINGS BANK, NEWPORT.

[Incorporated June 6, 1873.]

EDWARD A. BROWN, *President.*

DAVID BRAMAN, N. G. STANTON, CHAS. H. WARD, *Vice-Presidents.*

GEO. H. PROUD, *Secretary and Treasurer.*

DIRECTORS.

Edward A. Brown,	N. G. Stanton,	Ralph R. Barker,
David Braman,	Wm. A. Armstrong,	James B. Chase,
Chas. H. Ward,	Edward S. Peckham,	Albert C. Landers.

RESOURCES.

Due from banks, bankers, and trust companies	$77,415 50
Call loans to individuals and corporations	8,300 00
Mortgages on real estate	827,693 70
Stocks	55,280 00
Bonds	135,085 00
Loans secured by pledge of bonds, stocks, or other collaterals	63,873 93
Other real estate	9,517 36
Premium on stocks and bonds	24,329 72
	$1,201,495 21

LIABILITIES.

Amount of deposits	$1,155,682 93
Amount of profits on hand (surplus)	20,000 00
Profit and loss	25,812 28
	$1,201,495 21

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MISCELLANEOUS.

Whole number of depositors	1,706
" " " " $500 and under $1,000	222
" " " " $1,000 and upwards	285
Largest amount due any one depositor	$71,591 55
Amount of annual dividend	44,261 23
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$22,550 12
Date of last dividend	Jan. 15, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$42,581 88
Amount loaned on mortgages in other states:	
Massachusetts	$18,000 00

STOCKS HELD BY THE BANK.

BANK.	*Par Value*
23 shares Newport National	$1,380 00
346 " National Exchange Bank, Newport, R. I.	17,300 00
	$18,680 00
MISCELLANEOUS.	
366 shares Newport Water Works	$36,600 00

BONDS HELD BY THE BANK.

STATE.	*Par Value.*
Massachusetts registered 3½s	$10,000 00
MUNICIPAL.	*Par Value.*
Chelsea, Mass., 4s	$10,000 00
New York registered 4s	10,000 00
Taunton, Mass., 4s	10,000 00
Beatrice, Neb., 3s	3,200 00
	$33,200 00
DISTRICT.	
Narragansett, R. I., 4s	$17,000 00

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RAILROAD.

Fitchburg 4s	$10,000 00
New York, New Haven and Hartford 4s	10,000 00
Chicago, Burlington and Quincy 3½s	20,000 00
Illinois Central 3½s	5,000 00
Cincinnati, Indianapolis and Western 4s	10,000 00
	$55,000 00

SCHOOL.

Kiowa County 6s	$300 00

MISCELLANEOUS.

Investment Securities Company 4s	$1,085 00
Crystal Water Company 4s	$3,500 00
Woburn Light, Heat and Power 6s	10,000 00
Detroit Edison Company 5s	5,000 00
	$19,585 00

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JACKSON INSTITUTION FOR SAVINGS, PROVIDENCE.

(IN LIQUIDATIGN.)

[Incorporated May, 1870.]

ALVAH W. GODDING, *President.*

GEORGE E. LEONARD, *Secretary and Treasurer.*

RESOURCES.

Amount of unpaid dividends	$964 40
Profit and loss account	145,715 40
	$146,679 80

LIABILITIES.

Amount of deposits	$146,679 80

MISCELLANEOUS.

Whole number of depositors	683
" " " " $500 and under $1,000	66
" " " " $1,000 and upwards	37
Largest amount due any one depositor	$7,580 07
Amount of last dividend	36,149 91
Date of last dividend	Dec. 5, 1892.
Average rate of dividend for the last three years	10 per cent.

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KINGSTON SAVINGS BANK, KINGSTON.

[Incorporated June 14, 1855.]

JEREMIAH G. PECKHAM, *President.*

MILLARD F. PERRY, *Secretary and Treasurer.*

DIRECTORS.

Charles J. Greene,	John W. P. King,	Oliver Watson,
Oliver C. Howard,	Sanford C. Spink,	Thomas J. Hoxie.

RESOURCES.

Due from banks, bankers, and trust companies	$14,021 18
Mortgages on real estate	102,807 67
Stocks	43,090 00
Bonds	149,995 00
Loans on personal security	1,901 01
Loans secured by pledge of bonds, stocks, or other collaterals	5,900 00
Other real estate	12,000 00
Furniture and fixtures	2,000 00
	$331,714 86

LIABILITIES.

Amount of deposits	$301,673 23
Amount of profits on hand	30,041 63
	$331,714 86
Whole number of depositors	606 00
" " " " $500 and under $1,000	84
" " " " $1,000 and upwards	89
Largest amount due any one depositor	$9,091 43
Amount of annual dividend	11,850 36

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Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$5,883 91
Date of last dividend	Jan. 1, 1907.
Rate per cent. of last dividend	2 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$21,201 30

STOCKS HELD BY THE BANK.

BANK.	*Book Value.*
264 shares Kingston Trust Company	$9,240 00
RAILROAD.	
100 shares New York, New Haven and Hartford	$10,000 00
New York, New Haven and Hartford, conv. debentures	1,850 00
12 shares Grand Rapids	1,220 00
	$13,070 00
MISCELLANEOUS.	
40 shares United Illuminating Company	$4,000 00
78 " United Gas and Electric Company (preferred)	7,350 00
60 " Madison County Gas and Electric Company	4,800 00
13 " Michigan State Telephone Company (preferred)	1,300 00
132 " Southeastern Electric Company	3,330 00
	$20,780 00

BONDS HELD BY THE BANK.

RAILROAD.	*Book Value.*
Cicero and Proviso Street first mortgage 5s	$2,000 00
Great Northern first mortgage 4s	4,000 00
Manistee, Filer City and East Lake first mortgage 6s	6,000 00
Haverhill and Amesbury Street first mortgage 6s	5,000 00
Burlington Railway and Light Company first mortgage 5s	1,900 00
Central Branch first mortgage 4s	4,750 00
Cleveland, Painesville and Eastern consolidated first mortgage 5s	4,875 00
Cleveland, Painesville and Ashtabula first mortgage 5s	3,000 00
Schuylkill Electric first mortgage 6s	3,000 00
Dayton, Covington and Piqua first mortgage 5s	4,850 00
Detroit and Port Huron Shore Line first mortgage 5s	4,980 00
Georgia Railway and Electric Company first mortgage 5s	1,000 00
Rochester, Syracuse and Eastern first mortgage 5s	5,880 00
Elgin, Aurora and Southern Traction first mortgage 5s	2,000 00

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	Book Value.
Interurban Company first mortgage 5s	$4,950 00
Pittsburg, Binghamton and Eastern first mortgage 5s	9,850 00
Atlanta, Birmingham and Atlantic first mortgage 5s	1,920 00
Sedalia Light and Traction Company first mortgage 5s	4,800 00
	$74,755 00

MISCELLANEOUS.

Harrisburg Light, Heat and Power Company first mortgage 5s	$5,000 00
Windsor, Vt., Gas Light Company first mortgage 5s	3,890 00
Hudson River Water Power Company first mortgage 5s	8,000 00
United Gas and Electric Company, N. J., first mortgage 5s	4,000 00
Oklahoma Gas and Electric Company first mortgage 5s	4,950 00
Twin City Telephone Company first mortgage 5s	3,000 00
Missouri River Power Company first mortgage 6s	2,000 00
United Gas and Electric Company, New Albany and Jefferson first mortgage 5s	2,925 00
Port Jarvis Electric Light and Power Company first mortgage 5s	4,900 00
Dillon Electric Light Company first mortgage 6s	5,000 00
Philadelphia Steel and Iron Company first mortgage 6s	5,000 00
Richmond Light, Heat and Power Company refunding first mortgage 5s	4,750 00
Boise-Payvette River Electric Power Company first mortgage 6s	1,900 00
Berlin Mills Company first mortgage 5s	2,000 00
Grand Rapids Edison Company first mortgage 5s	5,000 00
Tacoma Gas Light Company first mortgage 5s	4,875 00
Pembroke Power Company first mortgage 5s	2,000 00
Pennsylvania, Beech Creek and Eastern Coal Company first mortgage 5s	2,700 00
Hudson River Electric Power Company first mortgage 5s	2,000 00
Syracuse Light and Power Company first mortgage 5s	1,350 00
	$75,240 00

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MECHANICS SAVINGS BANK, PROVIDENCE.

(IN LIQUIDATION.)

[Incorporated June, 1854.]

CHARLES C. HARRINGTON, *President.*

JOSEPH DAVOL, LOUIS H. COMSTOCK, and H. MARTIN BROWN, *Vice-Presidents.*

BRADFORD D. HARRIS, *Secretary and Treasurer.*

DIRECTORS.

William P. Chapin,	William H. Ballou,	Edward H. Mason,
Herbert N. Fenner,	Fenner H. Peckham,	Richard A. Robertson,
Horace A. Kimball,	Arthur L. Kelley,	Cyrus P. Brown,
James F. Field,	William H. Perry,	Chas. H. Manchester.

RESOURCES.

Cash on hand	$66 55
Due from banks, bankers, and trust companies	583,153 80
Call loans to individuals and corporations	9,600 00
Mortgages on real estate	65,884 10
Stocks	19,709 00
Bonds	31,250 00
Real estate	81,555 06
	$791,218 51

LIABILITIES.

Amount of deposits	$3,651 57
Amount of profits on hand	381,116 43
Certificates of indebtedness	387,789 30
Dividends in liquidation, uncalled for	18,551 45
Taxes unpaid	109 76
	$791,218 51

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MISCELLANEOUS.

Whole number of depositors	462
" " " " $500 and under $1,000	1
Largest amount due any one depositor	$522 60
Amount of dividends in liquidation	$7,437,377
Rate per cent. dividends in liquidation	95 per cent.
Amount of last dividend	$782,881 81
Date of last dividend	Dec. 1, 1906.
Rate per cent. of last dividend	10 per cent.
Amount loaned on mortgages in other States, face value:	
Minnesota	$9,400 00
Kansas	1,600 00
Nebraska	1,670 00
Iowa	21,733 15
Illinois	5,000 00
	$39,403 15

STOCKS HELD BY THE BANK.

RAILROAD.	*Cost to Bank.*
10 shares Denver and Northwestern	$1,000 00
135 " Chicago, Peoria and St. Louis (preferred) $18,709.00	18,709 00
	$19,709 00

BONDS HELD BY THE BANK.

MISCELLANEOUS.	*Cost to Bank.*
Providence Ice Company 5s, 1921	$25,000 00
International Loan and Trust Company, Kansas City 6s	6,250 00
	$31,250 00

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MECHANICS SAVINGS BANK, WESTERLY.

(IN LIQUIDATION.)

[Incorporated June, 1870.]

WILLIAM HOXSEY, *President.* IRA B. CRANDALL, *Vice-President.*

ALEXANDER C. THOMPSON, *Secretary and Treasurer.*

DIRECTORS.

William Hoxsey,	Ira B. Crandall,	Charles W. Willard,
Walter E. Wheeler,	Russel B. Smith,	Thomas P. Nichols,
Albert H. Spicer,	William W. Foster.	

RESOURCES.

Cash on hand	$871 16
Due from banks, bankers, and trust companies	51,952 27
Call loans to individuals and corporations	275 00
Mortgages on real estate	51,280 82
Stocks and oil leases	78,330 00
Bonds	15,000 00
Loans on personal security	10,000 00
Loans secured by pledge of bonds, stocks, or other collaterals	32,053 33
Other real estate	92,528 88
Furniture and fixtures	400 08
Profit and loss	64,370 70
	$397,062 24

LIABILITIES.

Amount of deposits	$396,924 13
Amount of profits on hand	138 11
	$397,062 24

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MISCELLANEOUS.

Whole number of depositors	1,929
" " " " $500 and under $1,000	128
" " " " $1,000 and upwards	67
Largest amount due any one depositor	$5,613 85
Amount of third dividend in liquidation	98,268 92
Rate per cent., third dividend in liquidation	10 per cent.
Amount of last dividend	$98,268 92
Date of last dividend	Dec. 11, 1905.
Rate per cent. of last dividend	10 per cent.
Total paid in liquidation to date	60 per cent.
Amount loaned on mortgages in other states:	
Connecticut	$258 30
Kansas	22,552 90
New Jersey	4,836 00
Massachusetts	1,400 00
Florida	61 00
	$29,108 40

STOCKS HELD BY THE BANK.

	MISCELLANEOUS.	*Cost to Bank.*
1,500 shares	Consolidated Gas, Oil and Manufacturing Company	$15,000 00
15,600 "	Drum Creek Oil Company	4,000 00
37½ "	Preferred stock Western States Portland Cement Co.	3,750 00
25 "	Common stock, Western States Portland Cement Co., par value $2,500.	
200,000 "	Indian Territory Illuminating Oil Company	40,580 00
21,840 acres	of leases of oil and gas lands in Oklahoma Territory	15,000 00
		$78,330 00

BONDS HELD BY THE BANK.

	RAILROAD.	*Cost to Bank.*
Tacoma, Lake Park and Columbia River		$15,000 00

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MECHANICS SAVINGS BANK, WOONSOCKET.

[Incorporated January, 1873.]

WM. C. MOWRY, *President.* FRANK E. FARNUM, *Secretary and Treasurer.*

DIRECTORS.

Wm. C. Mowry,	Frank E. Farnum,	George R. Smith,
Richard Barnett,	Warren A. Cook,	Solomon Treitel,
George S. Read,	Thomas A. Buell,	Seth S Getchell.
Erastus Richardson,	Darius D. Farnum,	Edwin O. Ronian,
		Allen A. Fowler.

RESOURCES.

Due from banks, bankers, and trust companies	$42,024 84
Call loans to individuals and corporations	4,000 00
Mortgages on real estate	755,553 31
Stocks	23,335 00
Bonds	236,556 65
Loans on personal security	91,340 37
Loans secured by pledge of bonds, stocks or other collaterals	26,500 00
City, town, fire district, and railroad notes	174,700 00
	$1,354,010 17

LIABILITIES.

Amount of deposits	$1,288,390 86
Amount of profits on hand	65,619 31
	$1,354,010 17

MISCELLANEOUS.

Whole number of depositors	1,866
" " " " $500 and under $1,000	255
" " " " $1,000 and upward	464

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Largest amount due any one depositor	$15,569 25
Amount of annual dividend	48,267 65
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$24,485 38
Date of last dividend	June 15, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$63,674 68
Amount loaned on mortgages in other States:	
Massachusetts	$4,150 00

STOCKS HELD BY THE BANK.

	Cost to Bank.
BANK.	
461 shares National Globe, Woonsocket, R. I.	$16,135 00
50 " National Union, Woonsocket, R. I.	2,500 00
	$18,635 00
RAILROAD.	
30 shares Cripple Creek Central (preferred)	$4,700 00
25 " Cripple Creek Central (common)	

BONDS HELD BY THE BANK.

TERRITORY.	
New Mexico 4s	$6,000 00
COUNTY.	
Sierra, New Mexico, 5s (refunding)	$10,000 00
Bannock, Idaho funding gold 6s	10,000 00
Uinta, Wy. (refunding) 4½s	5,000 00
Kootenai, Idaho, funding	600 00
Barbour, Ala., refunding 4½s	10,000 00
Big Horn, Wy., funding 5s	5,000 00
La Plata, Col., refunding 4½s	10,000 00
Mesa, Col., refunding 4½s	10,000 00
Lake, Col., 4s	4,800 00
	$65,400 00

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MUNICIPAL.	*Cost to Bank.*
New York, N. Y.	$10,000 00
Tacoma, Wash.	5,000 00
Evansville, Ind.	5,000 00
Woonsocket, R. I., water 4s	25,000 00
Duluth, Minn.	2,000 00
Sioux Falls, So. Dak.	10,000 00
West Bay City, Mich.	5,000 00
Goshen, Ind.	1,000 00
	$63,000 00
PRECINCT.	
Wood River, Dawson county, Neb.	$3,000 00
VILLAGE.	
Lakewood, O.	$5,000 00
SCHOOL.	
District No. 1, Archuleta county, Col.	$5,000 00
District No. 17, Arapahoe county, Col.	5,000 00
District No. 20, Pueblo county, Col.	7,000 00
District No. 1, Teller county, Col.	5,000 00
District No. 1, Pocatello county, Idaho	5,000 00
Independent School District of the city of Duluth, Minn.	8,000 00
	$35,000 00
RAILROAD.	
Rhode Island Suburban, guaranteed	$9,675 00
Detroit and Port Huron Shore Line	5,000 00
Detroit United	9 450 00
Cleveland Electric	5,000 00
	$29,125 00
MISCELLANEOUS.	
Woonsocket Electric Machine and Power Co.	$10,000 00
American Telephone and Telegraph Company collateral trust bonds	4,825 00
Imperial Japanese government 4s	4,340 40
Jarvis-Conklin Mortgage Trust Company debenture	866 25
Edison Electric Company, Los Angeles, Cal.	5,000 00
Detroit Edison Company	5,000 00
	$30,031 65

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MERCHANTS SAVINGS BANK, PROVIDENCE.

(IN LIQUIDATION.)

[Incorporated June 3, 1871.]

WILLIAM H. WASHBURN, *President.*

FRED B. EVANS, *Vice-President.* JOHN W. ANGELL, *Secretary and Treasurer.*

DIRECTORS.

Fred B. Evans,	F. E. Seagrave,	S. A. Hazard,
J. W. Angell,	E. E. Pierce, M. D.,	J. A. Shaw.
	Wm. H. Washburn,	

RESOURCES.

Cash on hand	$23 44
Due from banks, bankers, and trust companies	44,147 61
	$44,171 05

LIABILITIES.

Dividends in liquidation undrawn	$42,939 77
Profits and loss	1,231 28
	$44,171 05

MISCELLANEOUS.

Final dividend in liquidation	$79,937 99
Date of final dividend	June 14, 1907.
Rate per cent. of final dividend	6⅝ per cent.

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NIANTIC SAVINGS BANK, WESTERLY.

(IN LIQUIDATION.)

[Incorporated June. 1870.]

GEORGE S. GREENMAN, *President.*

E. B. PENDLETON and WILLIAM SEGAR, *Vice-Presidents.*

JAMES M. PENDLETON, *Secretary and Treasurer.*

DIRECTORS.

Wm. Segar,	E. M. Dodge,	E. B. Hinckley,
E. B. Pendleton,	Chas. A. Morgan,	E. E. Whipple.
	Jas. M. Pendleton,	

RESOURCES.

Due from banks, bankers, and trust companies.....	$3,559 78

LIABILITIES.

Amount of deposits.....	$3,559 78

MISCELLANEOUS.

Whole number of depositors.....	71
" " " $500 and under $1,000....	1
" " " $1,000 and upwards.....	1
Largest amount due any one depositor.....	$1,233 63
Amount of final dividend.....	$1,812,343 95
Rate per cent. of final dividend.....	107¼ per cent.
Date of last dividend.....	May 1, 1906.
Average rate of dividend to date of liquidation...	4 per cent. per an.

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PAWTUCKET INSTITUTION FOR SAVINGS, PAWTUCKET.

[Incorporated January, 1836.]

ALFRED M. COATS, *President.*

EBEN N. LITTLEFIELD, *Vice-President.*

CHARLES P. MOIES, *Secretary and Treasurer.*

GEORGE E. NICHOLAS, *Assistant Treasurer.*

DIRECTORS.

Edwin A. Perrin,	Charles B. Payne,	Fred W. Easton,
Charles P. Moies,	Joseph Belfield,	Fred A. Arnold,
John A. Arnold,	William P. Dempsey,	G. Bion Allen,
George M. Thornton,	J. Milton Payne,	John F. Clark.

RESOURCES.

Cash on hand	$16,494 43
Due from banks, bankers, and trust companies	159,268 44
Mortgages on real estate	1,569,311 00
Stocks	275,349 20
Bonds	3,403,958 09
Loans secured by pledge of bonds, stocks, or other collaterals	150,718 80
Banking house	117,500 00
Other real estate	119,718 00
City and town notes	8,000 00
	$5,820,317 96

LIABILITIES.

Amount of deposits	$5,220,339 30
Amount of profits on hand	500,682 32
Dividend due depositors July 15, 1907	99,296 34
	$5,820,317 96

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MISCELLANEOUS.

Whole number of depositors	10,994
" " " " $500 and under $1,000	1,384
" " " " $1,000 and upwards	1,596
Largest amount due any one depositor	$26,000 00
Amount of annual dividend	190,247 59
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$96,245 19
Date of last dividend	Jan. 15, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$492,443 15
Amount loaned on mortgages in other States:—	
Massachusetts	$14,930 00
Illinois	21,500 00
	$36,430 00

STOCKS HELD BY THE BANK.

	RAILROAD.	*Book Value.*
160 shares	Chicago, Milwaukee and St. Paul	$16,663 20
200 "	Morris and Essex	18,400 00
180 "	New York Central and Hudson River	19,637 50
150 "	New York, Lackawanna and Western	18,862 50
100 "	New York, New Haven and Hartford	11,861 00
500 "	Pennsylvania	30,000 00
100 "	Rensselaer and Saratoga	19,700 00
100 "	Rome, Watertown and Ogdensburg	13,400 00
		$148,524 20

	MANUFACTURING.	
123 shares	American Yarn common	$12,300 00
62 "	American Yarn preferred	6,200 00
		$18,500 00

	MISCELLANEOUS.	
635 shares	Providence Gas Company	$60,325 00
300 "	Pullman Company	48,000 00
		$108,325 00

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BONDS HELD BY THE BANK.

GOVERNMENT.	*Par Value.*
Sweden 3½s, 1920	$25,179 79
Imperial Japanese 4s, book value	8,680 80
	$33,860 59

STATE.	
Massachusetts 3s, 1915	$50,000 00
Massachusetts 3½s, 1928	50,000 00
Massachusetts 3½s, 1941	125,000 00
Massachusetts 3½s, 1943	75,000 00
	$300,000 00

CITY.	
Boston, Mass., 3½s, 1939	$40,000 00
Chicago, Ill., 4s, 1912–13–16–21	10,000 00
New York, N. Y., 4s, 1956	25,000 00
Pawtucket, R. I., 4s, 1923–37	54,000 00
Salt Lake, Utah, 4s, 1921–24	50,000 00
St. Paul, Minn., 5s, 1909	15,000 00
Seattle, Wash., 5s, 1912	75,000 00
Superior, Wis., 4s, 1924	25,000 00
	$294,000 00

TOWN.	
Amherst, Mass., 4s, 1920	$25,000 00

RAILROAD.	
Atchison, Topeka and Sante Fe 4s, 1955	$5,000 00
Atchison, Topeka and Sante Fe 4s, 1995	25,000 00
Atchison, Topeka and Sante Fe, adjustments, book value	22,500 00
Baltimore and Ohio (prior lien) 3½s, 1925, book value	24,656 25
Baltimore and Ohio (Southwest division) 3½s, 1925, book value	45,000 00
Boston Elevated 4½s, 1935	50,000 00
Boyer Valley 3½s, 1923	25,000 00
Burlington, Cedar Rapids and Northern 5s, 1934	10,000 00
Boston and Maine 4s, 1926	50,000 00
Burlington and Missouri River 4s, 1910	20,000 00
Central of Georgia 4½s, 1913, book value	9,987 50
Central of Peoria 5s, 1915	50,000 00
Chicago, Burlington and Quincy 3½s, 1949, book value	46,800 00
Chicago and Eastern Illinois 4½s, 1912	25,000 00
Chicago and Eastern Illinois 4½s, 1913, book value	24,335 00

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		Par Value.
Chicago and Great Western 5s, 1936		$25,000 00
Chicago Junction and Union Stock Yards 4s, 1940		50,000 00
Chicago, Rock Island and Pacific 4s, 1907		10,000 00
Cincinnati, Dayton and Ironton 5s, 1941		25,000 00
Cincinnati, Hamilton and Dayton 5s, 1942		25,000 00
Cleveland City Cable 5s, 1909		10,000 00
Cleveland, Lorain and Wheeling 5s, 1933		50,000 00
Concord and Montreal 3½s, 1920		25,000 00
Crosstown, 28th and 29th Streets, N. Y., 5s, 1996		50,000 00
Dayton and Michigan 5s, 1911		20,000 00
Erie, Pennsylvania (collateral) 4s, 1951	book value	9,500 00
Erie and Pittsburgh 3½s, 1940		50,000 00
Fitchburg 5s, 1908		25,000 00
Georgia Pacific 6s, 1922		10,000 00
Globe Street, Fall River, 5s, 1912		25,000 00
Grand Avenue, Kansas City, 5s, 1908		25,000 00
Illinois Central (Louisville division) 3½s, 1953	book value	47,875 00
Kansas City Cable 5s, 1911		25,000 00
Kings County Elevated 4s, 1949	book value	23,250 00
Lake Shore and Michigan Southern 4s, 1928		50,000 00
Lake Shore and Michigan Southern 5s, 1910	book value	24,937 50
Louisville and Nashville 4s, 1923	book value	24,125 00
Louisville and Nashville 5s, 1937		25,000 00
Lowell and Suburban Street 5s, 1911		50,000 00
Milwaukee Electric 5s, 1926		25,000 00
New York Central and Hudson River 5s, 1910	book value	49,843 75
New York Central and Hudson River 4s, 1934		50,000 00
New York, Lackawanna and Western 6s, 1921		6,000 00
New York, New Haven and Hartford 4s, 1955	book value	49,562 50
New York, New Haven and Hartford 5s, 1912		50,000 00
New York, New Haven and Hartford 3½s, 1956		4,500 00
New York, Ontario and Western 4s, 1992		25,000 00
New York, Ontario and Western 5s, 1913–14		25,000 00
Northern Ohio 5s, 1945		25,000 00
Northern Pacific Terminal 6s, 1933		46,000 00
Northern Pacific 3s, 2047	book value	16,100 00
Northern Pacific and Great Northern 4s, 1921		57,000 00
North Wisconsin 6s, 1930		31,000 00
Old Colony 4s, 1938		10,000 00
Old Colony 4s, 1925		25,000 00
Omaha Street 5s, 1914		40,000 00
Oregon Short Line 4s, 1929	book value	24,312 50
Pennsylvania Company 4½s, 1921		30,000 00
Pennsylvania Company 4½s, 1907	book value	49,750 00
Pennsylvania Company 3½s, 1915		10,000 00
Pennsylvania Company 5s, 1910	book value	49,500 00
Pittsburgh, Cincinnati, Chicago and St. Louis 4s, 1945		50,000 00

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	Par Value.
Portland and Ogdensburg 5s, 1908	$25,000 00
Rhode Island Suburban 4s, 1950.....book value	24,250 00
Rochester Street 5s, 1930	12,000 00
Rutland 4½s, 1941	25,000 00
St. Paul Eastern Grand Trunk 6s, 1913	5,000 00
St. Paul, Minneapolis and Manitoba 4½s, 1933	25,000 00
St. Paul and Northern Pacific 6s, 1923	15,000 00
Terminal Association of St. Louis 4½s, 1939	25,000 00
Terre Haute and Peoria 5s, 1942	25,000 00
Terre Haute Traction 5s, 1944.....book value	49,000 00
Texas and Pacific 5s, 1931	25,000 00
Toledo and Ohio Central 5s, 1935	15,000 00
Troy City 5s, 1942	25,000 00
United Traction 5s, 1933	50,000 00
Vandalia 4s, 1955	25,000 00
West End Street, Boston, 4s, 1916	25,000 00
West Shore 4s, 2361	10,000 00
	$2,291,785 00

MISCELLANEOUS.

American Bell Telephone Company 4s, 1908	$50,000 00
American Telephone and Telegraph Company 5s, 1910. book value	48,500 00
Edison Electric Illuminating Company 5s, 1910	25,000 00
Elmira Water Company 6s, 1913	25,000 00
General Electric Company 3½s, 1942.....book value	4,437 50
Laclede Gas Light Company 5s, 1934	25,000 00
Metropolitan Water Company 4s, 1919	18,000 00
Minneapolis General Electric Company 5s, 1934	50,000 00
Mystic Valley Water Company 5s, 1908	20,000 00
Pawtucket Electric Company 5s, 1916	50,000 00
Pawtucket Gas Company 4s, 1932.....book value	48,750 00
Racine Water Company 5s, 1911	20,000 00
United Electric Light and Power Company, Baltimore, 4½s, 1929 book value	24,625 00
Western Telephone and Telegraph Company 5s, 1932	50,000 00
	$459,312 50

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PEOPLES SAVINGS BANK, PROVIDENCE.

[Incorporated May, 1851.]

ROBERT KNIGHT, *President.*

HENRY F. LIPPITT, DUTEE WILCOX, EDWARD ABORN GREENE, *Vice-Presidents.*

JOHN G. MASSIE, *Secretary and Treasurer.*

DIRECTORS.

Francis W. Carpenter,	John Foster,	John R. Freeman,
Webster Knight,	Henry G. Day,	C. Prescott Knight,
James H. Chace,	Howard L. Clark,	Howard D. Wilcox,
John K. H. Nightingale,	Frank P. Comstock,	John G. Massie.

RESOURCES.

Cash on hand	$7,838 67
Due from banks, bankers, and trust companies	221,009 42
Mortgages on real estate	1,109,615 60
Stocks	523,487 50
Bonds	2,951,817 50
Loans on personal security	1,113,000 00
Loans secured by pledge of bonds, stocks, or other collaterals	387,628 12
Banking house	15,000 00
Other real estate	153,819 87
	$6,483,216 68

LIABILITIES.

Amount of deposits	$6,122,341 68
Amount of profits on hand	355,870 00
Balance due on mortgage loans	5,005 00
	$6,483,216 68

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MISCELLANEOUS.

Whole number of depositors	10,414
" " " " $500 and under $1,000	1,440
" " " " $1,000 and upwards	1,981
Largest amount due any one depositor	$15,417 30
Amount of annual dividend	231,094 39
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$117,005 97
Date of last dividend	Jan. 16, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$266,678 11

Amount loaned on mortgages in other States:—

Tennessee	$153,500 00
Colorado	75,000 00
Connecticut	50,000 00
Iowa	45,000 00
Minnesota	165,500 00
	$489,000 00

STOCKS HELD BY THE BANK.

BANK.	*Book Value.*
National Bank of Commerce, Providence	$75,000 00
Rhode Island Hospital Trust Company, Providence	70,000 00
Minnesota Loan and Trust Company, Minneapolis, Minn.	8,000 00
	$153,000 00
RAILROAD.	
New York Central and Hudson River	$10,000 00
Chicago and Northwestern (common)	100,000 00
Pittsburg, Bessemer and Lake Erie, guaranteed	7,375 00
Southern (preferred)	47,312 50
Rochester (preferred)	24,800 00
Pennsylvania	25,000 00
Atchison, Topeka and Sante Fe (common)	25,000 00
Southern Pacific Company	46,250 00
Terre Haute Traction and Light Co. (preferred)	25,000 00
Union Pacific Company (common)	30,000 00
	$340,737 50

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MISCELLANEOUS.	*Book Value.*
Michigan Light (preferred)	$24,750 00
Title Guarantee Company of Rhode Island, Providence	5,000 00
	$29,750 00

BONDS HELD BY THE BANK.

CITY AND TOWN.	*Book Value.*
Cincinnati, 6s, 1909, municipal	$17,000 00
Minneapols 4s, 1918	15,000 00
Minneapolis gold 4½s, C. H. & C. H., 1921	100,000 00
Chicago World's Columbian Exposition 4s, 1921	50,000 00
Columbus, Ohio, sewer 5s, 1911	25,000 00
Knoxville, Tenn., public improvement 5s, 1921	50,000 00
Town of South Kingstown, R. I., 4s, 1922	23,000 00
Pawtucket gold 4s, 1934	100,000 00
Pawtucket gold 4s, 1923	62,000 00
Providence water refunding loan 3s, 1930	200,000 00
	$642,000 00

RAILROAD.	
Pennsylvania 4½s, 1913	$50,000 00
Boston and Providence Corporation 4s, 1918	100,000 00
Grand Avenue, Kansas City, 5s, 1908	45,000 00
Milwaukee Electric Railway and Light 5s, 30 years, 1926	50,000 00
Cleveland, Lorain and Wheeling first mortgage, 5s, 1933	20,000 00
St. Paul and Northern Pacific 6s, 1923	50,000 00
The East Cleveland 5s, 1910	25,000 00
Brockton Street 5s, 1924	49,750 00
Newport Street first mortgage 5s, 20 years, 1910	5,000 00
United Traction and Electric Company first mortgage 5s, gold P. & P. Series, 1933	50,000 00
Columbus Street 5s, 1932	50,000 00
Indiana, Illinois and Iowa first mortgage 4s, 1950	24,250 00
Grand Rapids first mortgage 5s, gold, 1916	50,000 00
Elizabeth, Plainfield and Central Jersey 5s, 50 years, 1950	25,000 00
Chicago Junction Railways and Union Stock Yards Company 5s, 1915	50,000 00
St. Louis and San Francisco 4s, refunding mortgage gold 1951	21,750 00
Denver and Northwestern first collateral mortgage, 30 years, 5s, gold, 1932	20,000 00
East St. Louis and Suburban Company 5s, gold collateral trust, 1932	48,900 00
Western Maryland first mortgage, 50 years, gold, 4s, 1952	20,875 00
Wabash Pittsburgh Terminal, first mortgage, 50 years gold 4s, 1954.	45,625 00
Pere Marquette refunding mortgage 4s, 1955	46,000 00

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	Book Value.
Pennsylvania gold 3½s, 10 years convertible, 1915	$24,456 25
New York, New Haven and Hartford debenture 4s, 1947	50,000 00
Providence and Worcester first mortgage 4s, 1947, debenture	50,000 00
Seaboard Air Line refunding collateral trust 5s, gold, 1911	50,000 00
Iowa Central first refunding mortgage 4s, 50 years, gold, 1951	23,125 00
The Cleveland Electric 5s, mortgage gold, 1913	50,000 00
Northern Pacific and Great Northern 4s, joint bonds, C. B. and Q. collateral, 1921	95,125 00
St. Louis, Iron Mountain and Southern first mortgage 4s, 30 years, gold, 1933	22,875 00
Detroit United first consolidated mortgage 4½s, 30 years gold, 1932	45,875 00
Minneapolis Street and The St. Paul City consolidated mortgage bond 5s, 1928	25,000 00
Connecticut Railway and Light Company first refunding mortgage 4½s, 50 years gold, 1951	37,000 00
Birmingham Railway, Light and Power, general mortgage refunding "Ala" 4½s, 1954	24,000 00
New York, New Haven and Hartford convertible debenture certificates, 3½s, 1956	28,125 00
Portland first refunding mortgage sinking fund gold, Oregon, 5s, 1930	49,750 00
Rochester Railway and Light consolidated mortgage gold, 5s, 1954	25,000 00
St. Joseph Railway, Light, Heat and Power first mortgage gold 5s, 1937	25,000 00
	$1,472,481 25

MISCELLANEOUS.

Lehigh and Wilkesbarre Coal Company 5s, 1912	$50,000 00
Manville Company first mortgage 6s, 1913	130,000 00
The Securities Company consols 4s	45,000 00
Consolidated Elevator, Duluth, 6s, 1919	3,000 00
Cincinnati Edison Electric first mortgage 5s, 1917	25,000 00
Edison Electric Illuminating Company of Brooklyn, first consolidated 4s, 1939	48,500 00
Minneapolis General Electric 5s, gold, 30 years, 1934	50,000 00
Syracuse Lighting first mortgage 5s, 50 years gold, 1951	25,000 00
Detroit Edison 5s, first mortgage 30 years gold, 1933	49,875 00
Terre Haute Electric 5s, gold, 1929	14,400 00
Union Elctric Light and Power first mortgage 5s, 30 years, St. Louis, gold, 1932	24,750 00
Syracuse Gas first mortgage, 50 years 5s, gold, 1946	23,750 00
Lackawanna Steel first mortgage convertible gold 5s, 1923	23,375 00
Laclede Gas Light of St. Louis refunding and extension mortgage 5s, gold, 1934	24,750 00
Louisville Lighting first mortgage, 50 years, gold, 5s, 1953	24,500 00
Cleveland Electric Illuminating first mortgage gold 5s, 1927	25,000 00
Economy Electric Light and Power of Joliet, Ill., 5s, 1956	25,000 00

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	Book Value.
Municipal Gas and Electric Company of Rochester, first mortgage gold, N. Y., 1942	$50,000 00
Portland General Electric Company first mortgage gold, 1935	25,000 00
United Electric Light and Power first consolidated mortgage 4½s, gold, Baltimore, 1929	23,500 00
United Electric Securities collateral sinking fund 5s, 1934	37,000 00
Beech Creek Coal and Coke first mortgage 40 years sinking fund 5s, 1944	24,625 00
American Tobacco gold 4s, 1951	40,311 25
Des Moines Edison Light first mortgage gold 5s, 1931	25,000 00
	$837,336 25

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PEOPLES SAVINGS BANK, WOONSOCKET.

[Incorporated 1857.]

GEORGE M. WELLS, *President.*

ETIENNE C. DELABARRE, *Vice-President.*

REUBEN G. RANDALL, *Secretary and Treasurer.*

DIRECTORS.

Dexter B. Clark,	Charles H. Darling,	Charles I. Wells,
Aaron B. Warfield,	Jonathan B. Farnum,	Alphonse Gaulin,
John R. Boyden,	Austin S. Cook,	James M. McCarthy.
	Edward H. Rathbun,	

RESOURCES.

Cash on hand		$3,964 06
Due from banks, bankers, and trust companies		$27,598 23
Special account		3,104 87
Mortgages on real estate		792,476 83
Stocks		71,535 42
Bonds		1,169,860 00
Loans on personal security		32,463 00
Loans secured by pledge of bonds, stocks, or other collaterals		12,620 00
Other real estate		6,332 48
Furniture and fixtures		4,000 00
		$2,123,954 89

LIABILITIES.

Amount of deposits	$2,012,389 52	
Surplus		70,000 00
Profit and loss		17,889 98
Interest		23,675 39
		$2,123,954 89

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MISCELLANEOUS.

Whole number of depositors	4,913
" " " " $500 and under $1,000	561
" " " " $1,000 and upwards	587
Largest amount due any one depositor	$25,217 82
Amount of annual dividend	75,886 26
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$38,553 55
Date of last dividend	Apr. 16, 1907.
Rate per cent., last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$81,027 64

STOCKS HELD BY THE BANK.

BANK.	*Par Value.*
National Union, Woonsocket	$2,740 17
RAILROAD.	
Chicago and Great Western	5,000 00
Cripple Creek Central, preferred	1,900 00
Cleveland, Painesville and Ashtabula	25 00
Louisville and Nashville	27,225 00
Missouri River and Northwestern, preferred	25 00
New York, Auburn and Lansing	25 00
St. Joseph and Grand Island, preferred	7,875 00
St. Joseph and Grand Island, common	937 50
United Railways of San Francisco, preferred	4,872 00
United Railways of San Francisco, common	2,390 00
United Railways of San Francisco scrip	645 75
	$50,920 25
MISCELLANEOUS.	
American La France Fire Engine Company preferred	$2,250 00
American La France Fire Engine Company, common	600 00
British Packers Association	15,000 00
Stanislas Electric Power Company	25 00
	$17,875 00

BONDS HELD BY THE BANK.

GOVERNMENT.	*Cost to Bank.*
Republic of Cuba 5s, 1944	$5,000 00

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STATE.	*Cost to Bank.*
Jalisco, Mexico, 6s, 1930	$10,000 00
COUNTY.	
Lake, Colorado, 4s, 1921	$9,000 00
RAILROAD.	
Lake Shore and Michigan Southern 4s, 1928	$5,000 00
Newton and Northwestern 5s, 1932	15,000 00
Hutchinson and Southern 5s, 1928	10,000 00
Indiana, Illinois and Iowa 4s, 1950	5,000 00
Great Northern of Canada 4s, 1934	11,250 00
Hoosac Tunnel and Wilmington 5s, 1922	5,000 00
Missouri, Kansas and Texas of Texas 5s, 1942	5,000 00
Ohio and Little Kanawha 5s, 1950	5,000 00
Bellingham Bay and British Columbia 5s, 1932	25,000 00
Missouri, Kansas, and Oklahoma 5s, 1942	5,000 00
Manistee, Filer City and Clear Lake 6s, 1918	10,000 00
Richmond Passenger and Power Company 5s, 1925	15,000 00
Mason City and Clear Lake Traction Company, 6's, 1917	10,000 00
Indiana 5s, 1930	5,000 00
Sioux City Traction Company 5s, 1919	10,000 00
Loraine and Cleveland 5s, 1927	5,000 00
Pittsburg, McKeesport and Greensburgh 5s, 1931	10,000 00
Canton and Massilon 5s, 1921	15,000 00
Springfield and Western 5s, 1921	5,000 00
United Railways of San Francisco 4s, 1927	5,400 00
Detroit United 4½s, 1932	15,000 00
Brooklyn Union Elevated 5s, 1950	5,000 00
Indianapolis and Eastern 5s, 1927	25,000 00
Central Market Street 5s, 1922	20,000 00
Indianapolis and Shelbyville 5s, 1932	5,000 00
Youngstown-Sharon 5s, 1931	5,000 00
Broad Ripple Traction 5s, 1933	10,000 00
Columbus, Buckeye Lake and Newark 5s, 1921	15,000 00
Chicago, Cincinnati and Louisville 4½s, 1953	15,000 00
Honolulu Rapid Transit 6s, 1927	15,000 00
Lima 5s, 1916	10,000 00
Northern Illinois Light and Traction Company 5s, 1923	10,000 00
Manchester Traction Light and Power Company 5s, 1921	10,000 00
Ottumwa Traction and Light Company 5s, 1921	10,000 00
Cicero and Proviso Street 5s, 1915	10,000 00
Canton and Akron Street 5s, 1922	25,000 00
Cleveland Painesville and Ashtabula 5s, 1922	10,000 00
Louisville and Southern Indiana 5s, 1923	10,000 00
Indianapolis and Northern Traction 5s, 1932	10,000 00
Saginaw Valley Traction 5s, 1920	10,000 00

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	Cost to Bank.
Atlanta and Birmingham 5s, 1934	$10,000 00
Toledo Railway and Terminal 4½s, 1954	10,000 00
Atlanta Northern 5s, 1954	10,000 00
Columbus, Zainesville and Newark 5s, 1924	15,000 00
Hawkinsville and Florida Southern 5s, 1952	10,000 00
Detroit and Lake St. Clair 5s, 1920	10,000 00
Evansville Electric 4s, 1921	9,000 00
Jacksonville Electric 4s, 1921	5,000 00
Georgia Railway and Electric 5s, 1932	20,000 00
Southern Indiana 4s, 1951	13,500 00
Western Maryland 4s, 1952	8,500 00
Wabash and Pittsburg Terminal 4s, 1954	13,700 00
Gulf and Ship Island 5s, 1952	10,000 00
Springfield Railway and Light 5s, 1926	5,000 00
Fort Wayne, Bluffton, and Marion Traction Company 5s, 1935	9,500 00
Spokane Traction 5s, 1925	14,750 00
Fort Smith Light and Traction Company 5s, 1944	15,000 00
Northern Traction 5s, 1933	10,000 00
Detroit and Port Huron Shore Line 5s, 1950	5,000 00
Stanislas Electric Power Company 5s, 1946	9,000 00
Toledo Railway and Light Company 4s, 1909	9,500 00
St. Louis, Memphis and Southeastern 4½s, 1909	5,000 00
Shreveport Bridge and Terminal 5s, 1955	15,750 00
Louisville and Eastern 5s, 1956	10,000 00
Colorado and Southern 4½s, 1935	9,500 00
Missouri River and Northwestern 5s, 1944	9,500 00
South Bend and Southern Michigan Railway Company 5s, 1927	10,000 00
Pennsylvania Company 5s, 1907	5,000 00
Kansas City, Clinton and Springfield Railway Company 5s, 1925	8,000 00
Rochester, Syracuse and Eastern Company 5s, 1945	10,000 00
New York, Auburn and Lansing Company 5s, 1935	5,000 00
Danville, Urbana and Champaign Railway Company 6s, 1914	10,000 00
Buffalo and Susquehanna Company 5s, 1916	4,750 00
St. Louis Transit Company 5s, 1924	10,000 00
	$761,600 00

MISCELLANEOUS.

St. Joseph Stock Yard 4½s, 1930	$5,000 00
Terre Haute Electric 5s, 1927	10,000 00
Grand Rapids Gas Light Company 5s, 1915	5,000 00
Houston Electric Company 5s, 1925	25,000 00
Oklahoma Gas and Electric 5s, 1922	10,000 00
Crompton and Knowles Loom Works 6s, 1913–14–15–17–19–20	8,000 00
Silver Spring Bleach and Dye Company 6s, 1910	15,000 00
Oneonta Light and Power Company 5s, 1922	10,000 00
Hudson River Water Power Company 5s, 1929	10,000 00
Missouri River Power 6s, 1920	23,000 00

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	Cost to Bank.
Butte Electric and Power Company 5s, 1931	$15,000 00
LaCrosse Gas and Electric Company 5s, 1921	7,850 00
Savannah Electric Company 5s, 1952	5,000 00
Edison Electric 5s, 1922	10,000 00
Binghampton Light, Heat and Power Company 5s, 1921	5,000 00
Poughkeepsie Light, Heat and Power Company 5s, 1921	10,000 00
Burlington Railway and Light Company 5s, 1917	5,000 00
St. Joseph Railway, Light, Heat and Power Company 5s, 1937	10,000 00
Eastern Steamship Company 5s, 1927	10,000 00
Equitable Gas and Electric Company, Utica. 5s, 1942	10,000 00
Woonsocket Electric Machine and Power Company 4½s, 1943	14,500 00
Puget Sound Power Company 5s, 1933	5,000 00
Marquette and Bessemer D. and S. Company 4½s, 1933	10,000 00
American La France Fire Engine Company 6s, 1924	1,500 00
Ontario Power Company 5s, 1913	25,000 00
Grand Rapids Edison 5s, 1916	10,000 00
Jarvis-Conklin Trust Company coupon note	910 00
Hudson River Electric 5s, 1931	15,000 00
Metropolitan S. S. Company 5s, 1930	10,000 00
Topeka Edison Company 5s, 1930	10,000 00
San Diego Gas and Electric Company 5s, 1935	4,750 00
Minneapolis Gas Light Company 5s, 1930	5,000 00
Lynchburg Traction and Light Company 5s, 1930	10,000 00
American River Electric Company 5s, 1933	5,000 00
Keene Gas and Electric Company 5s, 1935,	5,000 00
Jacksonville Railway and Light Company 5s, 1930	10,000 00
Union Steel Company 5s, 1952	10,000 00
Detroit Edison Company 5s, 1911	10,000 00
Birmingham Railway, Light and Power Company 4½s, 1954	9,000 00
Republic Iron and Steel Company 5s, 1934	4,750 00
	$384,260 00

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PHENIX SAVINGS BANK, PHENIX.

(In Liquidation.)

[Incorporated June 24, 1858.]

HENRY L. GREENE, *President.*

Daniel Babcock, Presbary Hoxie, Vernum H. Bailey, *Vice-Presidents.*

George E. Sheldon, *Secretary and Treasurer.*

DIRECTORS.

Francis W. Greene,	J. Titus Andrew,	Ebenezer B. Fisk,
Albert F. Hill,	John Potter, 3d,	George E. Sheldon.

RESOURCES.

Cash on hand	$100 95
Due from banks, bankers, and trust companies	1,678 05
Profit and loss	63,301 60
	$65,080 60

LIABILITIES.

Amount of deposits	$63,301 60
Amount of profits on hand	75 05
Dividends uncalled for	1,703 95
	$65,080 60

MISCELLANEOUS.

Whole number of depositors	1,284
" " " " $500 and under $1,000	5
" " " " $1,000 and upwards	2
Largest amount due any one depositor	$1,551 06
Amount of last dividend	31,288 41
Date of last dividend	July 26, 1904.
Rate per cent. of last dividend	7⅝ per cent., final div. in liquidation.

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PRODUCERS SAVINGS BANK, WOONSOCKET.

[Incorporated May 1868.]

CHARLES H. HORTON, *President.*

SAMUEL P. COOK, *Secretary and Treasurer.*

DIRECTORS.

Charles H. Horton,	George H. Baker,	George H. Mowry,
Samuel P. Cook,	George F. S. Singleton,	Phillipe Boucher,
Charles E. Thomas,	Frank A. Cooke,	Edwin Farnell,
John A. C. Wightman,	Etienne C. Delabarre,	James E. Bradford,
Jonathan B. Farnum,	George Batchelor,	William Orrell,
Ariel C. Thomas,		Fred A. Colwell.

RESOURCES.

Cash on hand	$648 94
Due from banks, bankers, and trust companies	77,377 26
Mortgages on real estate	1,044,110 91
Stocks	24,925 00
Bonds	796,611 50
Loans on personal security	7,640 00
Loans secured by pledge of bonds, stocks, or other collaterals	94,086 61
City notes	45,000 00
Other real estate	1,200 00
Furniture and fixtures	4,000 00
	$2,095,600 22

LIABILITIES.

Amount of deposits	$2,008,985 92
Amount of profits on hand	86,614 30
	$2,095,600 22

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MISCELLANEOUS.

Whole number of depositors	3,140
" " " " $500 and under $1,000	516
" " " " $1,000 and upwards	738
Largest amount due any one depositor	$8,575 94
Amount of annual dividend	73,725 57
Rate per cent. of annual dividend	4 per cent.
Amount of last dividend	$37,603 48
Date of last dividend	Jan. 18, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$52,472 55

Amount loaned on mortgages in other States:—

Colorado	$5,000 00
Ohio	1,000 00
	$6,000 00

STOCKS HELD BY THE BANK.

BANK.	*Par Value.*
12 shares National Globe	$300 00
1,000 " Producers National	20,000 00
	$20,300 00

RAILWAY.	*Cost to Bank.*
50 shares Tri-City Railway and Light Company, preferred	$4,625 00

BONDS HELD BY THE BANK.

STATE.	*Book Value.*
Jalisco, Mexico, 6s, 1928	$5,000 00
Jalisco, Mexico, 6s, 1930	5,000 00
United States of Mexico 4s, 1954	9,387 50
	$19,387 50

COUNTY.	
Cascade, Mont., 6s, 1912	$5,000 00

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CITY.	*Book Value.*
Galveston, Texas, 5s, 1931	$5,000 00
Logan, Utah, 6s, 1913	10,000 00
Salt Lake City, Utah, 5s, 1914	10,000 00
Woonsocket, R. I., 4s, 1919	2,000 00
New Whatcom, Wash., 6s, 1913	10,000 00
	$37,000 00
SCHOOL.	
Spokane County, Washington, 6s, 1910	$10,000 00
Monmouth County, N. J., 5s, 1921	10,000 00
	$20,000 00
RAILROAD.	
Evansville Electric 4s, 1921	$4,400 00
Broad Ripple Traction 5s, 1933	5,000 00
Hutchinson and Southern 5s, 1928	10,000 00
St. Louis and San Francisco 6s, 1931	10,000 00
Northern Pacific, Great Northern 4s, 1921	20,000 00
Gulf and Ship Island 5s, 1952	5,000 00
Toledo Railway and Terminal Company 4½s, 1954	10,000 00
Pawtuxet Valley Electric 5s, 1933	10,000 00
Terminal Railroad Association of St. Louis 4s, 1953	5,000 00
Rutland 4½s, 1941	20,000 00
Indianapolis and Eastern 5s, 1927	5,000 00
Atlantic and Birmingham 5s, 1934	10,000 00
New Orleans Terminal 4s, 1953	4,600 00
R. I. Suburban 4s, 1950	4,575 00
Georgia Railway and Electric Company 5s, 1932	30,000 00
Oregon Short Line 4s, 1929	9,700 00
Wabash and Pittsburg Terminal 4s, 1954	9,250 00
Boston and Worcester Street 4½s, 1923	5,000 00
Louisville and Nashville, Pensacola division 6s, 1920	20,000 00
Chicago, Cincinnati, and Louisville 4½s, 1953	15,000 00
Grand Rapids, Belding, and Saginaw 5s, 1924	5,000 00
Cleveland Electric 5s, 1913	5,000 00
Birmingham Railway, Light and Power 4½s, 1954	9,487 50
Kansas City, Fort Scott, and Memphis 6s, 1928	5,000 00
St. Louis, Iron Mountain, and Southern 4s, 1933	5,000 00
Atlanta, Knoxville, and Northern 5s, 1946	15,000 00
Cicero and Proviso 5s, 1915	10,000 00
St. Joseph Railroad, Light, Heat and Power 5s, 1937	5,000 00
Missouri, Kansas, and Oklahoma 5s, 1942	5,000 00
Pennsylvania and Mahoning Valley 5s, 1922	5,000 00
Louisville and Eastern 5s, 1956	9,800 00
Wheeling and Lake Erie Equipment 4½s, 1912	5,000 00
Cleveland and Southwestern Traction 5s, 1923	4,825 00

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	Book Value.
Chicago, Rock Island and Pacific 4s, 1915	14,299 00
Southern Railway Equipment and Trust 4½s, 1910	6,000 00
Fort Smith Light and Traction 5s, 1944	9,500 00
South Bound 5s, 1941	10,000 00
Northern Chicago Street 4½s, 1931	10,000 00
Utica and Mohawk Valley 4½s, 1941	10,000 00
Lynn and Boston 6s, 1917	23,000 00
Choctaw, Oklahoma, and Gulf 5s, 1952	20,000 00
Pere Marquette Equipment 4½s, 1911	$5,000 00
Southern Indiana 4s, 1951	9,350 00
Flint and Pere Marquette 5s, 1939	5,000 00
Northern Maine Seaport 5s, 1935	10,000 00
Detroit United 4½s, 1932	9,412 50
Atlanta Northern 5s, 1954	5,000 00
Fort North and Denver City 6s, 1921	10,000 00
Pennsylvania 4½s, 1907	10,000 00
Pennsylvania 3½s, 1915	9,550 00
Danville, Urbana, and Champaign, 6s, 1914	10,000 00
	$487,749 00

MISCELLANEOUS.

Kanawha and Hocking Valley Coal and Coke 5s, 1951	$5,000 00
Woonsocket Electric Machine and Power 4½s, 1931	30,000 00
Edison Electrics, New Orleans, 5s, 1929	10,000 00
East Greenwich Water Supply 5s, 1906	5,000 00
Puget Sound Power 5s, 1933	5,000 00
Seattle Electric 5s, 1930	5,000 00
Norwich Gas and Electric 5s, 1927	10,000 00
United Electric Securities 5s, 1933	7,000 00
Silver Spring Bleaching and Dyeing Company 6s, 1910	5,000 00
Equitable Gas and Electric Company 5s, 1942	5,000 00
Municipal Gas and Electric 4½s, 1942	5,000 00
Portland General Electric 5s, 1935	10,000 00
Central Union Telephone 6s, 1916	5,000 00
The Detroit Edison 5s, 1933	20,000 00
Fairmont Coal Company 5s, 1931	10,000 00
West Kentucky Coal Company 5s, 1935	9,500 00
Dominion Coal Company 5s, 1940	20,000 00
Houston Electric Company 5s, 1925	9,475 00
The Shreveport Bridge and Terminal 5s, 1955	5,000 00
The Edison Electric Company, Los Angeles, 5s, 1922	20,000 00
Penacook and Boscawen Water Precinct 4½s, 1907	2,000 00
Madison River Power Company 5s, 1935	9,600 00
Clyde Steamship Company 5s, 1931	9,900 00
Northern Connecticut Light and Power Company 5s, 1926	5,000 00
	$227,475 00

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PROVIDENCE COUNTY SAVINGS BANK, PAWTUCKET.

[Incorporated May, 1853.]

BENJAMIN F. SMITH, *President.*

CHARLES H. FRENCH, *Vice-President.*

EUGENE A. TINGLEY, *Secretary and Treasurer.*

DIRECTORS.

William H. Park,	John A. Tillinghast,	Lyman M. Darling,
Adolph Cohen,	Arthur W. Stanley,	Peter B. McManus, Jr.
	John M. Fournier,	

RESOURCES.

Cash on hand and due from banks, bankers, and trust companies	$33,928 68
Mortgages on real estate	594,645 01
Bonds	178,000 00
Loans on personal security	7,125 72
Loans secured by pledge of bonds, stocks, or other collaterals	975 00
Banking house	62,000 00
Real estate sold by contract	8,526 21
Other real estate	143,374 06
Furniture and fixtures	2,700 00
	$1,031,274 68

LIABILITIES.

Amount of deposits	$964,338 77
Profit and loss	66,387 41
Premiums on bonds	548 50
	$1,031,274 68

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MISCELLANEOUS.

Whole number of depositors	3,512
" " " " $500 and under $1,000	271
" " " " $1,000 and upwards	236
Largest amount due any one depositor	$15,006 94
Amount of annual dividend	34,295 92
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$17,465 12
Date of last dividend	Jan. 21, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount loaned on mortgages in other States:—	
Massachusetts	$9,000 00

BONDS HELD BY THE BANK.

RAILROAD.	*Par Value.*
Baltimore, Chesapeake, and Atlantic 5s, 1934	$5,000 00
Bristol County Street 5s, 1921	5,000 00
Birmingham Railway, Light, and Power Company 4½s, 1954	5,000 00
Cleveland Electric 5s, 1913	10,000 00
Chicago, Cincinnati, and Louisville 4½s, 1953	5,000 00
Chicago and Eastern Illinois equipment 4½s, 1912	5,000 00
Chicago, Rock Island, and Pacific equipment 4½s 1913	5,000 00
Detroit United 4½s, 1932	20,000 00
Duluth, Rainy Lake, and Winnepeg 5s, 1916	5,000 00
Erie, Penn. collateral, 4s, 1951	5,000 00
Interborough Rapid Transit Company debenture 5s, 1910	5,000 00
Lake Shore and Michigan Southern debenture 5s, 1910	5,000 00
New York, New Haven, and Hartford debenture 5s, 1910	5,000 00
New York Central debenture 5s, 1910	5,000 00
Rochester, Syracuse, and Eastern 5s, 1945	5,000 00
Rhode Island Suburban 4s, 1950	10,000 00
Rutland 4½s, 1941	5,000 00
St. Louis, Iron Mountain, and Southern (River and Gulf) 4s, 1933.	5,000 00
Southern Indiana 5s, 1951	5,000 00
Spokane and Inland Empire 5s, 1926	5,000 00
United Traction and Electric Company, 5s, 1933	10,000 00
Wilkesbarre and Hazleton 5s, 1951	10,000 00
	$145,000 00

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MISCELLANEOUS.	*Par Value.*
American Telephone and Telegraph Company (collateral) trust 4s 1929	$5,000 00
Minneapolis General Electric Company 5s, 1934	5,000 00
Pawtucket Electric Company 5s, 1916	3,000 00
Republic Iron and Steel Company 5s, 1934	5,000 00
Silver Spring Bleaching and Dyeing Company 6s, 1910	15,000 00
	$33,000 00

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PROVIDENCE INSTITUTION FOR SAVINGS, PROVIDENCE.

[Incorporated 1819.]

GILBERT A. PHILLIPS, *President.*

GEORGE W. R. MATTESON, *1st Vice-President,* ROBERT H. I. GODDARD, *2d Vice-President,* HOWARD O. STURGIS, *3d Vice-President.*

LE BARON BRADFORD, *Secretary and Treasurer.*

DIRECTORS.

William Goddard,	William B. Weeden,	William Gammell,
Royal C. Taft,	Horatio N. Campbell,	Edward F. Child,
Samuel R. Dorrance,	Edward D. Pearce,	Robert W. Taft,
Robert Ives Gammell,	John W. Danielson,	Henry D. Sharpe.

RESOURCES.

Cash on hand	$187,368 80
Due from banks, bankers, and trust companies	482,439 41
Mortgages on real estate	3,460,504 83
Stocks	972,100 00
Bonds	10,680,625 00
Loans on personal security	4,821,520 77
Loans secured by pledge of bonds, stocks, or other collaterals	1,990,125 00
Banking house	50,000 00
Other real estate	50,946 58
	$22,695,630 39

LIABILITIES.

Amount of deposits	$21,191,867 33
Amount of profits on hand	1,503,763 06
	$22,695,630 39

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MISCELLANEOUS.

Whole number of depositors	41,644
" " " " $500 and under $1,000	6,638
" " " " $1,000 and upwards	7,938
Largest amount due any one depositor	$10,937 27
Amount of annual dividend	786,599 85
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$386,422 52
Date of last dividend	Jan. 16, 1907.
Rate per cent., of last dividend	4 per cent.
Average rate of dividend for the last three years	3½ per cent.
Amount of reserved profits at time of last dividend	$1,163,359 44

Amount loaned on mortgages in other States:—

Illinois	$608,450 00
Iowa	93,000 00
Kansas	170,100 00
Minnesota	596,112 83
Nebraska	264,550 00
New York	32,500 00
South Dakota	12,000 00
	$1,776,712 83

STOCKS HELD BY THE BANK.

		BANKS AND TRUST COMPANIES.	*Par Value.*
1120	shares	Blackstone Canal National, Providence	$28,000 00
250	"	Mechanics National, Providence	12,500 00
800	"	Merchants National, Providence	40,000 00
200	"	National Bank of Commerce, Providence (par value $10,000)	*7,600 00
300	"	Phenix National, Providence	15,000 00
38	"	Providence National, Providence	15,200 00
250	"	American Exchange National, New York	25,000 00
87	"	Rhode Island Hospital Trust Company, Providence	87,000 00
			$230,300 00

*Carried at book value.

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	RAILROADS.	*Par Value.*
800 shares	Albany and Susquehanna, guaranteed, Delaware and Hudson Canal Company, 7 per cent.	$80,000 00
500 "	Boston and Albany, guaranteed, New York Central and Hudson River, 8¾ per cent. (par value $50,000)	*100,000 00
500 "	Connecticut River, guaranteed, Boston and Maine, 10 per cent.	50,000 00
500 "	Fort Wayne and Jackson, prefererd, guaranteed, Lake Shore and Michigan Southern, 5½ per cent.	50,000 00
500 "	Old Colony, guaranteed New York, New Haven and Hartford, 7 per cent.	50,000 00
1000 "	Oswego and Syracuse ($50 each), guaranteed, Delaware, Lackawanna and Western, 9 per cent.	50,000 00
650 "	Providence and Worcester, guaranteed, New York, New Haven and Hartford, 10 per cent. (par value $65,000)	*111,800 00
400 "	Rensselaer and Saratoga, guaranteed, Delaware and Hudson Canal Company, 8 per cent.	40,000 00
500 "	Rome, Watertown and Ogdensburg, guaranteed, New York Central and Hudson River, 5 per cent.	50,000 00
500 "	Upper Coös, leased to Maine Central; 6 per cent. dividends	50,000 00
500 "	Manhattan Railway Company leased to Interborough Rapid Transit Company, 7 per cent dividend (par value $50,000)	*70,000 00
		$701,800 00

	MISCELLANEOUS.	
400 shares	Cheapside Land Company	$20,000 00
200 "	Title Guarantee Company of Rhode Island	20,000 00
		$40,000 00

BONDS HELD BY THE BANK.

	GOVERNMENT.	*Par Value.*
United States 4s, of 1895, 1925 ($500,000 loaned)		$1,000,000 00

	STATE.	
Massachusetts (water loan) 3s, 1941		$75,000 00
Massachusetts (water loan) 3½s, 1941		200,000 00
		$275,000 00

*Carried at book value.

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MUNICIPAL.	*Par Value.*
Bangor 4s, 1914	$100,000 00
Boston 3½s, 1929	100,000 00
Chicago 4s, 1921	50,000 00
Columbus, Ohio, 4s, 1910	40,000 00
Indianapolis, 4s, 1915	45,000 00
Knoxville 5s, 1921	25,000 00
Minneapolis 4½s, 1908	40,000 00
New Bedford, Mass., 6s, 1907–8	20,000 00
Newton 4s, 1916–26	69,000 00
Newton 4s, 1918	7,000 00
Newport 4s, 1928	40,000 00
Pawtucket 4s, 1923	50,000 00
Providence 4s, water loan, 1926	200,000 00
Providence 3½s, Weybosset bridge loan, 1929	66,000 00
Providence 3s, water refunding loan, 1930	300,000 00
St. Paul 5s, 1908	50,000 00
	$1,202,000 00

TOWN.	
Andover 4s, 1908–13	$40,000 00
Danvers 4s, 1911	25,000 00
North Providence 4s, 1912	50,000 00
South Kingstown 4s, 1907–22	45,000 00
Warwick 3½s, 1932	150,000 00
	$310,000 00

COUNTY.	
Middlesex, Mass., 4s, 1907–15	$39,000 00

RAILROAD.	
Brooklyn Union Elevated 5s, 1950	$100,000 00
Buffalo Consolidated 5s, 1931	50,000 00
Cleveland Electric first mortgage 5s, 1927	50,000 00
Cleveland Electric 5s, 1913	150,000 00
Columbus Street 5s, 1932	100,000 00
Columbus Consolidated Street 5s, 1909	52,000 00
Crosstown Street of Buffalo 5s, 1932	50,000 00
Denver City Tramway 5s, 1919	16,500 00
Denver and Northwestern Securities (par value $10,437.50)	*8,000 00
Detroit United first consolidated mortgage, 4½s, 1932 (par value $100,000)	*93,500 00
Kings County Elevated 4s, 1949 (par value $83,000)	*50,000 00
Lynn and Boston 5s, 1924	100,000 00

*Carried at book value.

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	Par Value.
Milwaukee Electric Railway and Light consolidated 5s, 1926	$25,000 00
Milwaukee Electric Railway and Light refunding and extension 4½s, 1931	50,000 00
Minneapolis Street 5s, 1919	110,000 00
North Chicago Street 5s, 1916	50,000 00
Rochester Railway, 5s, 1930	100,000 00
United Traction and Electric 5s, 1933	200,000 00
West End Street 4s, 1917	50,000 00
West End Street, 4s, 1932	100,000 00
Baltimore and Ohio first mortgage 4s, 1948	37,500 00
Baltimore and Ohio prior lien 3½s, 1925	315,000 00
Boston and Albany 4s, 1913	10,000 00
Boston and Lowell 4s, 1918	50,000 00
Boston and Maine 4½s, 1944	100,000 00
Boston and Maine 4s, 1926	100,000 00
Buffalo and Susquehanna 4½s, 1953	50,000 00
Burlington and Missouri River in Nebraska "exempt" 6s, 1918	50,000 00
Chicago, Burlington, and Quincy, Iowa division, 4s, 1919	104,000 00
Chicago, Burlington, and Quincy, Illinois division, 3½s, 1929–49	733,000 00
Chicago, Burlington and Quincy debenture 5s, 1913	100,000 00
Chicago and Eastern Illinois equipment 4½s, 1912–15	300,000 00
Chicago, Milwaukee and St. Paul, Dubuque division, 6s, 1920	175,000 00
Chicago and Northwestern debenture 5s, 1909	100,000 00
Cincinnati, Indianapolis and Western 4s, 1953	25,000 00
Cleveland, Cincinnati, Chicago and St. Louis 4s, 1993	50,000 00
Cleveland and Pittsburg 3½s, 1950	100,000 00
Delaware and Hudson 1st lien equipment 4½s, 1922	50,000 00
Grafton and Upton 4s, 1912	43,000 00
Hannibal and St. Joseph 6s, 1911	200,000 00
Housatonic consolidated 5s, 1937	100,000 00
Illinois Central, Omaha division, 3s, 1951 (par value $50,000) book value	44,125 00
Indiana, Illinois and Iowa 4s, 1950	100,000 00
Kalamazoo, Allegan and Grand Rapids 5s, 1938	100,000 00
Keokuk and Des Moines 5s, 1923	40,000 00
Lake Shore and Michigan Southern debenture 4s, 1928	100,000 00
Lake Shore and Michigan Southern debenture 4s, 1931	100,000 00
Long Island 4s, 1949	50,000 00
Minneapolis, St. Paul and Sault Ste. Marie 1st 4s, 1938	100,000 00
Morris and Essex 7s, 1915	125,000 00
New York Central and Hudson River, Lake Shore collateral 3½s, 1998	150,000 00
New York Central and Hudson River, Michigan Central collateral 3½s, 1998	50,000 00
New York Central and Hudson River debenture 4s, 1934	300,000 00
New York, New Haven and Hartford debenture 4s, 1947	150,000 00

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	Par Value.
New York, New Haven and Hartford, Harlem and Port Chester division, 4s, 1954	$50,000 00
New York, Ontario and Western general mortgage 4s, 1955	50,000 00
New York, Providence and Boston 4s, 1942	250,000 00
Oregon Short Line 4s, 1929	50,000 00
Pennsylvania Company, 3½s, 1916	73,000 00
Pennsylvania Company, 4s, 1921–31	100,000 00
Pennsylvania Company, convertible 3½s, 1915	100,000 00
Philadelphia, Baltimore and Washington 4s, 1943	100,000 00
Providence and Worcester 4s, 1947	100,000 00
Richmond-Washington Company collateral trust 4s, 1943	100,000 00
St. Paul, Minneapolis and Manitoba 6s, 1933	100,000 00
St. Paul, Minneapolis and Manitoba 4½s, 1933	150,000 00
Vandalia consolidated 4s, 1955	50,000 00
	$10,680,625 00

MISCELLANEOUS.

American Dock and Improvement Company 5s, 1921	$25,000 00
Fort-Street Union Depot Company 4½s, 1941	25,000 00
Lackawanna Steel Company first mortgage 5s, 1923	50,000 00
Manville Company first mortgage 5s, 1913	125,000 00
Pennsylvania Steel Equipment Trust 3½s, 1910	200,000 00
St. Louis National Stock Yards 4s, 1930	50,000 00
Terminal Railroad Association of St. Louis, 4s, 1953	50,000 00
American Bell Telephone Company 4s, 1908	100,000 00
American Telephone and Telegraph Company 4s, 1929	200,000 00
Cumberland Telephone and Telegraph Company first 5s, 1918	50,000 00
	$875,000 00

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RHODE ISLAND INSTITUTION FOR SAVINGS, PROVIDENCE.

(In Liquidation.)

EUGENE BABCOCK, *Treasurer.*

RESOURCES.

Cash on hand	$1,570 06

LIABILITIES.

Amount of deposits	$1,570 06

MISCELLANEOUS.

Date of last dividend (final)	Nov. 8, 1899.
Rate per cent., last dividend	10½ per cent.

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SAVINGS BANK OF NEWPORT, NEWPORT.

[Incorporated 1819.]

J. TRUMAN BURDICK, *President.*

W. H. HAMMETT, *Secretary.* G. P. TAYLOR, *Treasurer.*

DIRECTORS.

Henry C. Stevens,	G. Norman Weaver,	Peter King,
Albert K. Sherman,	Wm. H. Hammett,	Alex. N. Barker,
Wm. K. Covell,	Thomas A. Lawton,	Wm. P. Buffum,
Wm. P. Sheffield, Jr.,	J. Truman Burdick,	Anthony Stewart.

RESOURCES.

Cash on hand	$18,749 20
Due from banks, bankers, and trust companies	94,245 91
Mortgages on real estate	3,762,961 06
Stocks	120,440 00
Bonds	3,728,865 00
Loans on personal security	2,000 00
Loans secured by pledge of bonds, stocks, or other collaterals	66,000 00
Banking house	30,500 00
Other real estate	119,381 35
	$7,943,142 52

LIABILITIES.

Amount of deposits	$7,106,271 17
Amount of profits on hand	123,209 49
Profits and loss	713,661 86
	$7,943,142 52

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MISCELLANEOUS.

Whole number of depositors	8,647
" " " " $500 and under $1,000	1,025
" " " " $1,000 and upwards	1,855
*Largest amount due any one depositor	$169,148 21
Amount of annual dividend	268,957 05
Rate per cent., annual dividend	†
Amount of last dividend	137,008 42
Date of last dividend	Jan. 18, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	‡
Amount of reserved profits at time of last dividend	$713,661 86

STOCKS HELD BY THE BANK.

	BANK.	*Par Value.*
114 shares	Newport National, Newport, R. I.	$6,840 00
66 "	New England Commercial, Newport, R. I.	3,300 00
25 "	Merchants National, New Bedford, Mass.	2,500 00
35 "	Mechanics National, New Bedford, Mass	3,500 00
148 "	First National, New Bedford, Mass.	14,800 00
99 "	National Bank of Commerce, Boston, Mass.	9,900 00
190 "	National Shawmut, Boston, Mass.	19,000 00
160 "	Second National, Boston, Mass.	16,000 00
75 "	Hanover National, New York, N. Y.	7,500 00
66 "	Gallatin National, New York, N. Y.	3,300 00
50 "	American Exchange National, New York, N. Y.	5,000 00
100 "	National Bank of North America, New York, N. Y.	10,000 00
120 "	National Bank of Commerce, New York, N. Y.	12,000 00
68 "	Fall River National, Fall River, Mass.	6,800 00
		$120,440 00

BONDS HELD BY THE BANK.

	GOVERNMENT.	
United States 3s		$200,000 00

* Townsend Fund for Peoples Free Library, Home for Friendless Children, and Townsend Aid for Aged.

† July dividend 1906; 3½ per cent. per annum, January, 1907, 4 per cent. per annum.

‡ July dividend, 1903; January dividend, 1904; 3½ per cent. per annum, July dividend, 1904; January dividend, 1905, July dividend, 1905, January dividend, 1906, July dividend, 1906, split dividend; January dividend, 1907, 4 per cent. per annum.

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STATE.	*Par Value.*
Massachusetts 3s	$100,000 00
Tennessee 3s	2,200 00
	$102,200 00

MUNICIPAL.

Newport, R. I. 4s	$344,000 00
Providence, R. I., 4s	200,000 00
Pawtucket, R. I., 4s	75,000 00
New York, N. Y., 3s, 3½s, and 4s	160,000 00
Philadelphia, Pa., 3½s	100,000 00
Boston, Mass., 3½s	100,000 00
Chelsea, Mass., 4s	100,000 00
Salem, Mass., 4s	11,000 00
Lynn, Mass., 4s	50,000 00
Lawrence, Mass., 4s	50,000 00
Springfield, Mass., 3½s	50,000 00
Newton, Mass., 4s	100,000 00
Malden, Mass., 4s	50,000 00
Waltham, Mass., 4s	15,000 00
Everett, Mass., 4s	50,000 00
New Bedford, Mass., 4s	50,000 00
Medford, Mass., 4s	31,000 00
Haverhill, Mass., 4s	50,000 00
Wakefield, Mass., 4s	50,000 00
Hyde Park, Mass., 4s	50,000 00
Lowell, Mass., 4s	200,000 00
Middletown, Conn., 365-100s	28,000 00
Norwalk, Conn., 4s	50,000 00
Jersey City, N. J., 4s and 5s	100,000 00
Chicago, Ill., 4s	100,000 00
St. Paul, Minn., 4s	50,000 00
Louisville, Ky., 4s	100,000 00
St. Louis, Mo., 4s	48,665 00
Omaha, Neb., 4½s	50,000 00
Kansas City, Mo., 4½s	100,000 00
Middletown, R. I., 4s	7,000 00
Jamestown, R. I., 4s	20,000 00
New Shoreham, R. I., 4s	4,000 00
	$2,543,665 00

DISTRICT.

Narragansett, R. I., 4s	$37,000 00

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RAILROAD.	*Par Value.*
New York Central and Hudson River 3½s	$100,000 00
Chicago, Burlington and Quincy 3½s	100,000 00
New York, New Haven and Hartford 4s	200,000 00
Illinois Central 3½	50,000 00
Chicago, Rock Island and Pacific 4s	50,000 00
Cincinnati, Indianapolis and Western 4s	50,000 00
Pere Marquette 4½s	25,000 00
Rutland 4½s	25,000 00
New York, Lackawanna and Western 6s	50,000 00
Michigan Central 5s	41,000 00
St. Paul, Chicago, Minneapolis and Omaha 6s	50,000 00
Boston, Revere Beach and Lynn 4½s	25,000 00
West End 4s	59,000 00
Boston Elevated 4s	21,000 00
	$846,000 00

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SMITHFIELD SAVINGS BANK, GREENVILLE.

[Incorporated May, 1872.]

SIMON S. STEERE, *President.* ANDREW B. WHIPPLE, *Vice-President.*
MARSHALL W. MOWRY, *Secretary.* NICHOLAS S. WINSOR, *Treasurer.*

DIRECTORS.

Simon S. Steere,	Nicholas S. Winsor,	Charles P. Allen,
Andrew B. Whipple,	Henry S. Turner,	Albert J. Mowry,
Alonzo P. Mowry,	Stephen H. Brown,	Franklin S. Colwell.

RESOURCES.

Cash on hand	$1,321 36
Due from banks, bankers, and trust companies	11,213 06
Mortgages on real estate	414,566 00
Stocks	67,568 00
Bonds	36,050 00
Loans on personal security	3,000 00
Loans secured by pledge of bonds, stocks, or other collaterals	30,000 00
Other real estate	35,400 00
Expense account	300 00
	$599,418 42

LIABILITIES.

Amount of deposits	$560,538 42
Amount of profits on hand	3,228 62
Profits and loss	35,651 38
	$599,418 42

MISCELLANEOUS.

Whole number of depositors	898
" " " " $500 and under $1,000	84
" " " " $1,000 and upwards	137

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Largest amount due any one depositor	$45,141 08
Amount of annual dividend	21,929 87
Rate per cent. of annual dividend	4 per cent.
Amount of last dividend	$11,043 01
Date of last dividend	May 1, 1907.
Rate per cent., of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$35,651 38

STOCKS HELD BY THE BANK.

RAILROAD.	*Cost to Bank.*
200 shares United Traction and Electric Company	$19,875 00
BANK.	
62 shares Merchants National, Providence, R. I.	$3,348 00
1049½ " National Exchange, Greenville, R. I.	44,345 00
	$47,693 00

BONDS HELD BY THE BANK.

RAILROAD.	
Rhode Island Suburban Street 4s	$9,200 00
MISCELLANEOUS.	
Central Leather Company 5s	$10,000 00
Buffalo and Susquehanna Iron Company 5s	9,850 00
Providence, Fall River and Newport Steamboat Company	7,000 00
	$26,850 00

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WAKEFIELD INSTITUTION FOR SAVINGS, WAKEFIELD.

[Incorporated 1850.]

JOHN BABCOCK, *President.*

JOHN E. BABCOCK, *Secretary and Treasurer.*

DIRECTORS.

Benj. F. Robinson,	Jesse V. B. Watson,	Benj. W. Palmer,
John E. Babcock,	Joshua C. Tucker,	Wm. G. Gould,
Geo C. Sherman,	John Allen,	R. R. Robinson.

RESOURCES.

Due from banks, bankers, and trust companies	$19,343 45
Call loans to individuals and corporations	31,200 00
Mortgages on real estate	332,667 50
Stocks	196,006 75
Bonds	177,621 93
Loans on personal security	38,143 94
Loans secured by pledge of bonds, stocks, or other collaterals	17,490 00
Banking house	17,000 00
Other real estate	67,433 90
	$896,907 47

LIABILITIES.

Amount of deposits	$856,857 40
Amount of profits on hand	40,050 07
	$896,907 47

MISCELLANEOUS.

Whole number of depositors	2,230
" " " " $500 and under $1,000	204
" " " " $1,000 and upwards	238

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Largest amount due any one depositor	$18,477 62
Amount of annual dividend	30,735 97
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$30,735 97
Date of last dividend	Oct. 3, 1906.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$22,346 20

STOCKS HELD BY THE BANK.

		Book Value.
	BANK.	
100 shares	National Bank of Commerce	$5,000 00
287 "	Wakefield Trust Company	17,835 00
3 "	The Trust Company of America	800 00
		$23,635 00
	RAILROAD.	
10 shares	Illinois Central	$1,500 00
175 "	Southern Railway preferred	15,918 75
200 "	Atchison, Topeka and Sante Fe preferred	19,630 00
153 "	Pennsylvania	11,075 00
50 "	St. Louis and San Francisco first preferred	3,600 00
100 "	Erie first preferred	8,175 00
50 "	Union Pacific preferred	4,930 00
50 "	Chicago and East Illinois	9,000 00
50 "	United Traction and Electric Company	5,000 00
109 "	New Hampshire Electric Railways (50 preferred, 59 common)	5,000 00
100 "	Louisville and Nashville	14,200 00
		$98,028 75
	MISCELLANEOUS.	
107 shares	Malden Electric Company	$18,025 00
121 "	Suburban Gas and Electric Company	20,000 00
70 "	Westinghouse Electric and Manufacturing Company	5,970 00
60 "	General Electric Company	9,384 00
50 "	American Telephone and Telegraph Company	6,025 00
16 "	Michigan State Telephone Company preferred	1,000 00
10 "	Michigan State Telephone Company common	
51 "	Springfield Gas Light Company	11,806 00
Lombard Suburban Company land trust certificates		2,133 00
		$74,343 00

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BONDS HELD BY THE BANK.

RAILROAD.	*Book Value.*
Albany and Susquehanna first mortgage 3½s, 1946	$5,793 75
Southern Pacific C. P. collateral 4s, 1949	4,350 00
Great Northern, first guaranteed 4s, 1934	3,750 00
Grand Rapids first mortgage 5s, 1916	3,000 00
Exeter, Hampton and Amesbury first mortgage 5s, 1919	5,000 00
Peekskill Lighting and Railway Company first mortgage 5s, 1930	5,000 00
Pittsburg, McKeesport and Greenburg first mortgage 5s, 1931	5,000 00
Augusta Railway and Electric Company first mortgage 5s, 1940	5,000 00
Missouri, Kansas and Texas second mortgage 4s, 1990	1,500 00
Central of Georgia first consolidated 5s, 1945	1,930 00
Erie general lien 4s, 1996	1,700 00
Youngstown-Sharon Railway and Light Company first mortgage 5s, 1931	4,900 00
Detroit United first consolidated 4½s, 1932	4,700 00
Southern Railway collateral trust 5s, 1909	5,000 00
Birmingham Railway, Light and Power Company general mortgage 4½s, 1954	4,800 00
Dover, Somersworth and Rochester first mortgage 5s, 1921	1,000 00
Omaha Street first mortgage 5s, 1914	3,000 00
The Seattle Electric Company first mortgage 5s, 1930	3,925 00
	$69,348 75

MISCELLANEOUS.	
Portland General Electric Company first mortgage 5s, 1935	$3,000 00
Detroit Edison Company first mortgage 5s, 1933	10,000 00
Commonwealth Power Company first mortgage 5s, 1924	5,000 00
Michigan State Telephone Company debenture 6s, 1909	5,000 00
Hudson River Water Power Company first mortgage 5s, 1929	5,000 00
Bay Counties Power Company first mortgage 5s, 1930	2,000 00
Hammond Illuminating Company consolidated mortgage 5s, 1921	5,000 00
Lombard Investment Company debenture (in liquidation)	17 35
Potosina Electric Company sinking fund 5s, 1958	3,000 00
Hamilton Electric Light and Cataract Power Company first mortgage 5s, 1929	2,000 00
Postal Telegraph Cable Company first mortgage 5s, 1928	5,000 00
Narragansett Pier Electric Light and Power Company first mort- 6s, 1908	3,800 00
Missouri Edison Eectric Company first mortgage 5s, 1927	5,000 00
Haverhill Gas Securities Company consolidated mortgage 5s, 1914.	5,000 00
Utica Electric Light and Power Company first mortgage 5s, 1950	5,000 00
Jarvis-Conklin Mortgage Trust Company debenture (in liquidation).	695 83
Michigan State Telephone Company first mortgage 5s, 1924	3,900 00
City Electric Light Company first mortgage 6s, 1914	2,000 00

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	Book Value.
Twin City Telephone Company first mortgage 5s, 1926	9,000 00
United States Steel Corporation sinking fund 5s, 1963	4,400 00
Duluth Edison Company first mortgage 5s, 1931	5,000 00
Westinghouse Electric and Manufacturing Company convertible sinking fund 5s, 1931	1,960 00
Detroit City Gas Company general mortgage 5s, 1913	3,000 00
Dallas Electric Corporation first mortgage 5s, 1922	5,000 00
Butte Electric and Power Company first mortgage 5s, 1951	5,000 00
United Fruit Company serial debenture 6s, 1918	4,500 00
	$108,273 18

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WARREN INSTITUTION FOR SAVINGS, WARREN.

(In Liquidation.)

[Incorporated 1856.]

SAMUEL L. PECK, *President.*

A. B. Gardner, *Secretary and Treasurer.*

DIRECTORS.

Alfred B. Gardner,	Frank S. Drowne,	Luther Cole,
Edwin A. Cady,	Edward R. Cutler,	Charles W. Greene.
	Joseph W. Martin,	

RESOURCES.

Due from banks, bankers, and trust companies.....	$1,675 28

LIABILITIES.

Dividend in liquidation.....	$1,390 27
Real estate foreclosed.....	54 02
Contingent fund.....	230 99
	$1,675 28

MISCELLANEOUS.

Whole number of depositors.....	20
Largest amount due any one depositor.....	$297 75
Amount of dividend in liquidation.....	1,276,984 29
Rate per cent., dividend in liquidation.....	107 243/1000
Date of dividend in liquidation.....	Feb. 1, 1906.

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WARWICK INSTITUTION FOR SAVINGS, CENTERVILLE.

(In Liquidation.)

[Incorporated 1845.]

CHARLES DUKE, *President.*

Thomas W. D. Clarke, *Secretary and Treasurer.*

DIRECTORS.

Charles Duke,	Amos O. Foster,	Linsol B. Northrup,
M. J. E. Legris,	H. A. Fifield,	Charles Matteson,
Stephen W. Thornton,	L. C. Greene,	George B. Waterhouse,
Robert Knight, .	Moses Fifield,	Thos. H. Clarke,
Albert G. Whitman,	James J. Petter,	Albert Tyler,
Benj. F. Waterhouse,	R. E. Waterhouse,	George C. Wood.
Thomas W. D. Clarke,	Francis H. Clough,	

RESOURCES.

Due from banks, bankers, and trust companies.....	$5,275 16

LIABILITIES.

Amount of deposits.....	$3,696 75
Expense account.....	1,578 41
	$5,275 16

MISCELLANEOUS.

Whole number of depositors.....	241
Largest amount due any one depositor.....	$304 00
Amount of final dividend.....	19,401 85
Date of final dividend.....	July 10, 1901.
Rate per cent. of final dividend.....	1.88 per cent.
Total dividend in liquidation.....	97.14 per cent.

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WICKFORD SAVINGS BANK, WICKFORD.

[Incorporated May, 1855.]

CHARLES B. REYNOLDS, *President.*

JOSEPH G. REYNOLDS, *Secretary and Treasurer.*

DIRECTORS.

Edward S. Hall,	Frank E. Brown,	Elwin E. Young,
Thomas J. Peirce,	Frank A. Peckham,	John W. Hainsworth.
Joseph G. Reynolds,	William P. Hambly,	

RESOURCES.

Cash on hand	$1,137 49
Due from banks, bankers, and trust companies	30,884 25
Mortgages on real estate	214,701 00
Stocks	10,900 00
Bonds	112,125 00
Loans on personal security	7,329 31
Loans secured by pledge of bonds, stocks, or other collaterals	6,625 00
Other real estate	6,612 93
	$390,314 98

LIABILITIES.

Amount of deposits	$344,062 26
Amount of profits on hand	10,809 90
Profits and loss	35,442 82
	$390,314 98

MISCELLANEOUS.

Whole number of depositors	1,015
" " " " $500 and under $1,000	88
" " " " $1,000 and upwards	92

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Largest amount due any one depositor	$8,210 93
Amount of annual dividend	13,059 67
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$6,466 35
Date of last dividend	Jan. 2, 1907.
Rate per cent of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$31,851 76

STOCKS HELD BY THE BANK.

BANK.	*Par Value.*
80 shares Fourth National, New York City	$8,000 00
33 " Merchants National, New York City	1,650 00
	$9,650 00

MISCELLANEOUS.	*Book Value.*
20 shares Tampa Building and Improvement Company pfd	$1,250 00

BONDS HELD BY THE BANK.

RAILROAD.	*Par Value.*
The Schuylkill Electric 6s, 1925	$1,000 00
Jackson and Battle Creek Traction Company 5s, 1923	5,000 00
Pittsburg, Binghampton and Eastern 5s, 1956 book value	4,975 00
Detroit, Toledo and Ironton 5s, 1908	5,000 00
Portsmouth, Dover and York Street 4½s, 1923	1,000 00
Detroit, Toledo and Ironton 4s, 1955 book value	4,250 00
New York, Auburn and Lansing 5s, 1935	5,000 00
Santa Fe, Raton and Des Moines 5s, 1936	5,000 00
Youngstown and Southern 5s, 1923	5,000 00
Western Ohio 5s, 1921	5,000 00
Laramie, Hans Peak and Pacific 5s, 1921	2,000 00
Fonda, Johnstown and Gloversville 4½s, 1952	5,000 00
Guayaquil and Quito 6s, 1932 book value	4,000 00
Detroit, Port Huron and Shore Line 5s, 1950	1,000 00
	$53,225 00

MISCELLANEOUS.	
Electric Development Company 5s, 1933	$5,000 00
Eastport Electric Light Company 5s, 1921	2,000 00
Central Pennsylvania Coal Company 5s, 1935	6,000 00

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	Par Value.
Connecticut River Power Company 5s	$2,000 00
Battle Creek Coal and Coke Company 6s, 1935	5,000 00
The Securities Company of New York consols 4s	3,900 00
West India Electric Company 5s, 1928	5,000 00
Randolph Macon Coal Company 5s, 1935	5,000 00
Utah Light and Power Company 4s, 1930	5,000 00
Madison County Gas and Electric Company 5s, 1944	5,000 00
Hudson River Electric Company 5s, 1931	5,000 00
Vermont Securities Company 6s, 1916	10,000 00
	$58,900 00

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WOONSOCKET INSTITUTION FOR SAVINGS, WOONSOCKET.

[Incorporated 1845.]

AUSTIN S. COOK, *President.*

CHARLES E. BALLOU, *Secretary and Treasurer.*

DIRECTORS.

George W. Jenckes,	Charles H. Darling,	Edward H. Rathbun,
Francello G. Jillson,	E. Chas. Francis,	Charles N. Cook,
John W. Ellis,	George H. Mowry,	Frank A. Jackson,
Frederick Cook,	Stanley G. Smith,	Aram J. Pothier,
George M. Welles,	Dexter B. Clark,	Paul Edwin Aldrich,
Charles E. Ballou,	Latimer W. Ballou,	Wm. N. Kimball.

RESOURCES.

Cash on hand	$1,165 00
Due from banks, bankers, and trust companies	71,932 11
Mortgages on real estate	1,975,284 30
Stocks	86,810 00
Bonds	5,064,925 00
Loans on personal security	95,142 12
Loans secured by pledge of bonds, stocks, or other collaterals	105,539 00
	$7,400,797 53

LIABILITIES.

Amount of deposits	$6,683,017 80
Amount of profits on hand	671,040 60
Accrued interest	46,739 13
	$7,400,797 53

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MISCELLANEOUS.

Whole number of depositors	11,536
" " " " $500 and under $1,000	2,029
" " " " $1,000 and upwards	2,237
Largest amount due any one depositor	*$13,000 00
Amount of annual dividend	249,960 97
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$126,965 46
Date of last dividend	May 1, 1907.
Rate per cent of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$666,202 09

Amount loaned on mortgages in other States:—

Massachusetts	$9,000 00
Kansas	5,000 00
Iowa	5,500 00
Minnesota	8,000 00
Nebraska	5,500 00
	$33,000 00

STOCKS HELD BY THE BANK.

BANK.	*Par Value.*
National Union, Woonsocket	$10,350 00
National Globe, Woonsocket,	8,650 00
	$19,000 00
RAILROAD.	
Duluth Street	$10,000 00
Buffalo and Susquehanna	25,000 00
Cripple Creek preferred	25,000 00
	$60,000 00
MISCELLANEOUS.	
Michigan State Telephone	$7,810 00

*Charitable.

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BONDS HELD BY THE BANK.

GOVERNMENT.	*Par Value.*
Republic of Cuba 5s, gold	$10,000 00
Imperial Japanese	11,500 00
	$21,500 00

STATE.	
Jalisco, Mexico, water and school gold 6s, 1928	$25,000 00
Territory of Arizona funding 5s, 1942	30,000 00
Territory of New Mexico 6s, 1913–1923	25,000 00
Territory of New Mexico funding 6s, 1909–1919	10,000 00
	$90,000 00

MUNICIPAL.	
Chicago Sanitary District 5s, 1913	$30,000 00
Bridgeport, Conn., consolidated 4s, 1924	25,000 00
Chicago, North Lincoln Park 5s, 1911	8,000 00
Portland, Oregon, city hall 5s, 1920	25,000 00
San Antonio, Texas, improvement 6s, 1907	17,000 00
Hiawatha, Kansas, water 6s, 1917	20,000 00
Ironton, Ohio, memorial hall 5s, 1910	15,000 00
Seattle, Wash., water and sewer 5s, 1910	25,000 00
Astoria, Oregon, water 6s, 1922	15,000 00
Astoria, Oregon, funding 6s, 1910	10,000 00
West Duluth, Minn., town hall 6s, 1910	10,000 00
Wheeling, West Va., bridge 6s, 1924	6,000 00
Spokane, Wash., general 6s, 1911	25,000 00
Knoxville, Tenn., improvement 5s, 1921	25,000 00
Omaha, Neb., paving 5s, 1912	25,000 00
San Antonio, Texas, improvement 6s, 1921	13,000 00
Asheville, N. C., street improvement 5s, 1911	25,000 00
Norfolk, Va., refunding 5s, 1922	5,000 00
Norfolk, Va., water works 5s, 1922	20,000 00
Galveston, Texas, street improvement 5s, 1931	50,000 00
Salt Lake City, Utah, general purposes 5s, 1914	20,000 00
Waco, Tex., sewer 5s, 1923	6,000 00
Asbury Park, N. J., water 5s, 1924	20,000 00
Central Falls, R. I., fire district 4½s, 1913–1919	27,000 00
Ogden, Utah, improvement gold 5s, 1913	16,000 00
Ogden, Utah, improvement 6s, 1911	10,000 00
Tacoma, Wash., 5s, 1920	20,000 00
The Dalles, Ore., gold 6s, 1920	10,000 00
Woonsocket, R. I., water 4s, 1915	25,000 00
Houston Paving and Sewer 5s, 1958	25,000 00

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	Par Value.
Kansas City improvement 6s, 1902–1908	$7,500 00
Wichita, Kansas, refunding 6s, 1921	13,000 00
Woodland, Cal., refunding 5s, 1930–1939	10,500 00
Woonsocket, R. I., 4s, 1923	25,000 00
Columbus, Tex., water 6s, 1943	12,000 00
City of Duluth, bridge 4s, 1930	25,000 00
	$666,000 00

TOWN.

East Providence general purposes 4s, 1943	$20,000 00
East Providence fire district 4½s, 1932	25,000 00
Cranston funding gold 4s, 1937	11,000 00
	$56,000 00

COUNTY.

Cascada, Mont., funding 6s, 1912	$25,000 00
McCracken refunding 5s, 1923–1933	35,000 00
Sullivan, Ind., drainage 6s, 1909	31,500 00
Buncomb, N. C., funding 5s, 1915	5,000 00
Chippewa, Mich., road 5s, 1910	29,000 00
Deer Lodge, Mont., 5s, 1909–1919	15,000 00
Bayfield, Wis., railroad aid 5s, 1915	10,000 00
Prowers, Col., refunding 5s, 1910–1920	13,500 00
	$164,000 00

VILLAGE AND TOWNSHIP.

Village of Troy, Ohio, water 6s, 1918	$11,000 00
Township of Newark, Ohio, soldiers' memorial 5s, 1913	14,500 00
	$25,500 000

SCHOOL.

El Paso 6s, 1920	$7,000 00
Houston, Texas, 6s, 1921	25,000 00
Alameda, Cal., gold 5s, 1919	17,425 00
Spokane county, Wash., 6s, 1910	15,000 00
Omaha, Neb., 5s, 1912	57,000 00
Hartford, Conn., school district 4s, 1904–1924	25,000 00
New Haven, Conn., school district 4s, 1928	14,000 00
Newport News, Va., 4½s, 1918–1928	10,500 00
Teller county, Col., 6s, 1905–1915	10,000 00
South Omaha, Neb., 5s, 1923	10,000 00
	$190,925 00

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RAILROAD,	*Par Value.*
Syracuse Consolidated Street 5s, 1920	$15,000 00
Des Moines, Ia., Street 6s, 1912–1919	25,000 00
St. Paul, Minn., 5s, 1937	15,000 00
Jamaica and Brooklyn Road Company gold 5s, 1930	25,000 00
Globe Street, Fall River, Mass., 5s, 1912	25,000 00
Trenton Passenger, N. J., 6s, 1931	25,000 00
Metropolitan Street, Kansas City, Mo., 5s, 1909	25,000 00
Columbus, Ohio, Street 5s, 1932	25,000 00
North Chicago Street 5s, 1914	25,000 00
Pawtucket Electric Company 5s, 1915	25,000 00
Union Traction and Electric Company, Providence, gold 5s, 1933	50,000 00
Greenfield and Turner's Falls, Mass., 5s, 1916	15,000 00
Los Angeles Traction, Cal., 6s, 1915	20,000 00
Midland Terminal 5s, 1925	25,000 00
Toledo, Ohio, Traction Company gold 5s, 1909	25,000 00
Mason City and Clear Lake, Ill., Traction 5s, 1917	25,000 00
Milwaukee Electric Railway and Light Company gold 5s, 1926	50,000 00
West Chicago Street gold 5s, 1915	25,000 00
Cincinnati Edison Electric gold 5s, 1917	25,000 00
Ogdensburg and Lake Champlain gold 4s, 1948	25,000 00
Rutland gold 4½s, 1941	50,000 00
Hoosac Tunnel and Wilmington 5s, 1922	25,000 00
Baltimore, Chesapeake and Atlantic gold 5s, 1934	50,000 00
Edison New Orleans Electric gold 5s, 1929	25,000 00
Detroit, Fort Wayne and Belle Isle gold 5s, 1927	20,000 00
Sante Fe, Phenix and Prescott gold 5s, 1942	75,000 00
Lorain and Cleveland 5s, 1927	27,000 00
Galveston, Houston and Henderson 5s, 1913	25,000 00
Missouri Pacific 6s, 1920	35,000 00
St. Louis, Iron Mountain and Southern 5s, 1931	50,000 00
Chicago Electric Transit Company 6s, 1914	16,000 00
Queensborough Electric Light and Power Company gold 5s, 1928	25,000 00
Binghampton, Lestershire and Union 5s, 1925	15,000 00
Chesapeake and Ohio Railroad gold 5s, 1939	25,000 00
Cleveland, Lorain and Wheeling 5s, 1933	25,000 00
Middletown, O., Electric Light and Power Company gold 6s, 1919	10,000 00
New York Gas and Electric Company 5s, 1948	25,000 00
Alleghany and Western gold 4s, 1998	20,000 00
Indiana gold 5s, 1930	25,000 00
Quincy Gas and Electric gold 5s, 1929	25,000 00
Duluth Street 5s, 1930	35,000 00
Buffalo, Rochester and Pittsburg 4½s, 1920	25,000 00
Northern Ohio 5s, 1945	10,000 00
Bay Counties Power Company, Cal., 5s, 1930	25,000 00
Sioux City Traction 5s, 1919	25,000 00
Temple Iron Company (guaranteed by Central R. R., N. J.) 4s, 1925	30,000 00

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	Par Value.
Cincinnati, Muncie and Richmond 5s,1950	25,000 00
North Chicago Street 4½s, 1931	25,000 00
Buffalo and Susquehanna 4s, 1951	50,000 00
Taunton Street gold 5s, 1914	12,000 00
Gulf and Ship Island 5s, 1952	50,000 00
Williamsport and North Branch 4½s, 1931	25,000 00
Butte Electric and Power 5s, 1926	25,000 00
Canton and Massilon Electric 5s, 1920	25,000 00
United Electric Gas and Power 5s, 1920	15,000 00
Detroit United Electric 5s, 1932	25,000 00
28th and 29th Street, New York, 5s, 1996	25,000 00
Chicago, Rock Island and Pacific 4s	20,000 00
Indianapolis and Eastern 5s, 1927	25,000 00
Canton and Akron Electric gold 5s, 1922	10,000 00
Chicago and Cincinnati gold 5s, 1952	25,000 00
Broad Ripple Traction guaranteed 5s, 1933	25,000 00
Pere Marquette, Bessemer and Lake Erie guaranteed 4½s, 1933	30,000 00
Des Moines and Iowa Falls 5s, 1931	40,000 00
Louisiana and Arkansas gold 5s, 1927	25,000 00
Burlington Railway and Light 5s, 1917	25,000 00
Guayaquil and Quito gold 6s, 1932	13,000 00
New York and Stamford Electric 5s, 1931	25,000 00
Pere Marquette, Lake Erie and Detroit 4½s, 1932	25,000 00
Cleveland and Southwestern 5s, 1923	25,000 00
St. Louis and San Francisco equipment 5s, 1909	15,000 00
Jackson and Battle Creek Traction 5s, 1923	35,000 00
Chicago, Cincinnati and Louisville equipment 5s, 1911	25,000 00
Boston and Worcester Electric 4½s, 1923	25,000 00
Great Northern and Northern Pacific 4s, 1921	10,000 00
Cleveland and Electric 5s, 1913	25,000 00
Detroit and Port Huron 5s, 1950	25,000 00
Pine Bluff and Western 5s, 1923	25,000 00
Atlantic and Birmingham gold 5s, 1934	50,000 00
Indianapolis Northern Traction gold 5s, 1932	25,000 00
Southern Indiana 4s, gold, 1951	50,000 00
Toledo Railway and Terminal Company 4½s, 1954	30,000 00
Baltimore Electric Light and Power Company 4½s, 1929	25,000 00
Georgia Railway Company 5s, gold, 1932	25,000 00
Hawkinsville and Florida Southern 5s, 1952	30,000 00
Chicago, Rock Island and Pacific 4s, 1934	10,000 00
Pere Marquette 4s, 1955	10,000 00
Pittsburgh-Wabash Terminal 4s, 1954	25,000 00
Cincinnati, Hamilton and Dayton 4s, 1954	25,000 00
Maryland, Delaware and Virginia 5s, 1955	50,000 00
Fonda, Johnstown and Gloversville 4½s, 1952	10,000 00
Georgia and Alabama Terminal 5s, 1948	25,000 00
Norfolk and Southern 5s, 1954	15,000 00

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	Par Value.
Chicago and Eastern Illinois 4½s, 1914	10,000 00
Chicago, Cincinnati and Louisville 4½s, 1953	50,000 00
Pittsburgh Terminal and Coal Company 5s, 1942	25,000 00
Lake Shore and Michigan Southern 4s, 1928	25,000 00
New York Central and Hudson River 4s, 1934	25,000 00
Cincinnati Northern 4s, 1951	15,000 00
Evansville and Terre Haute 4s, 1915	25,000 00
Birmingham Railway, Light and Power Company 4½s, 1954	25,000 00
Pennsylvania Company, guaranteed by Penn. R.R., 4s	25,000 00
Atlantic Coast Line 4s, 1952	25,000 00
Hudson and Manhattan 4½s	25,000 00
Buffalo and Susquehanna 5s, 1913	15,000 00
Duluth, Rainy Lake and Winnepeg 5s, 1916	25,000 00
Pittsburg, Binghampton and Eastern 5s, 1956	25,000 00
Jacksonville Railway and Light 5s, 1931	25,000 00
Rhode Island Suburban 4s, 1950	25,000 00
Kentucky Central 4s, 1987	25,000 00
Southern Railway 4s, 1951	25,000 00
Minneapolis, St. Paul, and Sault Ste Marie 5s, 1910, 1916, 1911	25,000 00
Rochester, Syracuse and Eastern 5s, 1945	25,000 00
Chicago, Rock Island and Pacific 4½s, 1916	17,000 00
Chesapeake and Ohio 4s, 1916	15,000 00
Hocking Valley 4s, 1916	25,000 00
Peoria Terminal 4s, 1937	25,000 00
Providence Securities Company 4s, 1957	25,000 00
Somerset Railway Company 5s, 1911	15,000 00
Delaware and Hudson Railway 4½s, 1922	25,000 00
	$3,100,000 00

MISCELLANEOUS.

Chicago Suburban Water and Light Company 5s, 1949	$25,000 00
Peoples Gas Light and Coke Company 5s, 1947	25,000 00
La Grange, Ill., Water Works and Electric 5s, 1951	10,000 00
Bergen County, N. J., gas 5s, 1949	20,000 00
Omaha, Neb., water works gold 5s, 1946	50,000 00
Silver Spring Bleaching and Dyeing Company 6s, 1910	40,000 00
New York and New Jersey Water Company gold 5s, 1920	25,000 00
Pennsylvania Telegraph and Telephone Company 5s, 1916	20,000 00
St. Albans Electric Light and Power Company gold 5s, 1902–1918	22,000 00
American Mail Steamship Company 6s, 1908	5,000 00
Haverhill Gas Securities Company gold 5s, 1916–1929	25,000 00
Sunset Telegraph and Telephone 5s, 1929	10,000 00
Western Union Telegraph Company 4½s, 1950	50,000 00
Lindsay Water Company, Pa., 5s, 1919	10,000 00
Washington Light and Water Company 6s, 1909	9,000 00
Blue Lake, Cal., water 6s, 1938	15,000 00

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	Par Value.
Clinton Gas and Electric Light 5s, 1913–1919	25,000 00
Vaughn Machine Company gold 5s, 1911	25,000 00
Twin City Telephone, Minn., 5s, 1913–1915	20,000 00
Eastern Steamship Company 5s, 1927	25,000 00
Hudson River Electric Company gold 5s, 1931	25,000 00
The Edison Electric Company, Los Angeles, 5s, 1922	25,000 00
Detroit City Gas 5s, 1914	25,000 00
Michigan State Telephone Company 5s, 1921	25,000 00
Union Electric and Power Company 5s, 1932	25,000 00
Detroit Edison Light and Power 5s, 1933	10,000 00
Grand Rapids Edison 5s, 1916	25,000 00
Bell Telephone of Canada 5s, 1925	25,000 00
Rome Gas Electric Light and Power 5s, 1931	25,000 00
Clyde Steamship Company 5s, 1931	25,000 00
Fort Smith Light and Gas Company 5s, 1944	10,000 00
Tacoma Light and Gas 5s, 1926	25,000 00
Hudson River Power and Transportation gold 5s, 1935	25,000 00
	$751,000 00

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STATEMENTS OF BANKING COMPANIES.

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BOSTON BANKING COMPANY, WOONSOCKET.

[Incorporated April 17, 1903.]

THOMAS D. TAYLOR, *President.*

BURTON M. FIRMAN, *Vice-President.* ELMER F. TWYMAN, *Secretary.*

H. E. REYNOLDS, *Treasurer.*

DIRECTORS.

Thomas D. Taylor,	Wm. R. Dunham,	Elmer F. Twyman.
Burton M. Firman,	Wm. F. Taylor, Jr.,	

RESOURCES.

Cash on hand	$28,297 60
Due from banks, bankers, and trust companies	11,116 46
Stocks	87,925 00
Loans secured by pledge of bonds, stocks, or other collaterals	190,430 72
Furniture and fixtures	8,156 19
	$325,925 97

LIABILITIES.

Capital stock paid in	$50,000 00
Undivided profits	35,091 26
Certified checks	102 40
Time certificates of deposit	10,653 00
Other deposits	230,079 31
	$325,925 97

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MISCELLANEOUS.

Accounts not subject to check.

Whole number of depositors	9,415
" " " " $500 and under $1,000	7
" " " " $1,000 and upwards	6
Largest amount due any one depositor	$1,149 71
Amount of annual interest allowed	1,068 45
Rate per cent., annual interest	4 per cent.
Amount of last semi-annual interest allowance	$509 40
Date of last semi-annual interest allowance	June 15, 1907.
Average rate of interest for the last three years	4 per cent.

STOCKS OWNED BY THE BANK.

	BANK.	*Cost to Bank.*
160 shares	New England Trust Company	$16,000 00
300 "	Boston Security Company	30,000 00
400 "	Worcester Security Company	40,000 00
		$86,000 00

MISCELLANEOUS.

37 shares	Bankers Loan Company	$925 00
100 "	Springfield Security Company	1,000 00
		$1,925 00

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STATEMENTS OF TRUST COMPANIES.

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CENTRAL TRUST COMPANY, PROVIDENCE.

[Incorporated May, 1900.]

ALFRED P. WARD, *President.*

GEORGE A. GRAY, *Vice-President.* ALFRED P. WARD, *Secretary.*

ALBERT F. DAVIS, *Treasurer.*

DIRECTORS.

Jacob Stephans,	George A. Gray,	A. P. Ward,
F. M. Ballou,	H. D. Heydon,	J. A. Latham.

RESOURCES.

Cash on hand and in banks	$12,085 21
Mortgages on real estate	135,432 76
Stocks	25,750 00
Loans and discounts	21,920 66
Loans secured by pledge of bonds, stocks, or other collaterals	35,971 55
Auxiliary banking system	5,350 00
Furniture, fixtures, and charter	3,440 11
Bills receivable	806 73
	$240,757 02

LIABILITIES.

Capital stock paid in	$100,000 00
Other undivided profits	3,962 28
Deposits (general account)	17,707 72
Deposits (participation account)	106,410 55
Other deposits	3,121 47
Bills payable	9,555 00
	$240,757 02

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	2,999
" " " " $500 and under $1,000	29
" " " " $1,000 and upwards	11
Largest amount due any one depositor	$3,741 60
Amount of annual dividend	3,000 31
Rate per cent., annual dividend	4½ per cent.
Amount of last dividend	$1,526 47
Date of last dividend	Jan. 1, 1907.
Rate per cent. of last dividend	4½ per cent.
Average rate of dividend for the last three years	4½ per cent.

STOCKS HELD BY THE COMPANY.

BANK.	*Par Value.*
2575 shares Commercial Corporation	$25,750 00

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INDUSTRIAL TRUST COMPANY, PROVIDENCE.

[Incorporated June 9, 1886.]

OFFICERS.

SAMUEL P. COLT, *President.* J. M. ADDEMAN, *Vice-President.*

CYRUS P. BROWN, *Treasurer,* WALDO M. PLACE, *Asst. Treasurer.*

WARD E. SMITH, *Secretary,* HENRY B. CONGDON, *Asst. Secretary.*

OTIS EVERETT, *Auditor.*

DIRECTORS.

Samuel P. Colt,
Olney T. Inman,
George Peabody Wetmore,
William R. Dupee,
Warren O. Arnold,
Richard A. Robertson,
Joshua M. Addeman,
W. T. C. Wardwell,
James M. Scott,
William H. Perry,
Arthur L. Kelley,
H. Martin Brown,
Frederick Tompkins,
Levi P. Morton,
James Stillman,
George F. Baker,
George G. Haven,
Thomas F. Ryan,
Henry A. C. Taylor,
George M. Thornton,
James Speyer,
George H. Norman,
Cyrus P. Brown,
Elbridge T. Gerry,
Richard S. Howland,
Chas. C. Harrington,
Joseph Davol,
Louis H. Comstock,
Herbert N. Fenner,
J. Milton Payne,
Eben N. Littlefield.

PAWTUCKET BRANCH.

GEORGE M. THORNTON, *Chairman of Board.*

J. MILTON PAYNE, *Vice-Chairman.*

WILLIAM H. PARK, *Manager.* CHARLES L. KNIGHT, *Asst. Manager.*

BOARD OF MANAGERS.

Lyman B. Goff,
George M. Thornton,
Darius L. Goff,
Edwin A. Perrin,
William P. Dempsey,
J. Milton Payne,
James L. Jenks,
Charles Sisson,
Samuel P. Colt,
S. Willard Thayer,
Samuel M. Conant,
Cyrus P. Brown,
Frederic R. Mason,
George T. Greenhalgh,
Henry G. Thresher,
Andrew J. Currier,
Walter H. Stearns,
LeRoy Fales,
Eben N. Littlefield,
Joseph W. Freeman.

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NEWPORT BRANCH.

FREDERICK TOMPKINS, *Chairman of Board.*

THOMAS P. PECKHAM, *Manager.*

BOARD OF MANAGERS.

Frederick Tompkins,	Thomas P. Peckham,	George R. Chase,
H. Audley Clarke,	Jeremiah W. Horton,	Samuel P. Colt,
Angus McLeod,	Henry A. C. Taylor,	Cyrus P. Brown.

WOONSOCKET BRANCH.

JOHN W. ELLIS, *Chairman of Board.* E. C. FRANCIS, *Manager.*

BOARD OF MANAGERS.

John W. Ellis,	E. C. Francis,	Charles E. Ballou,
W. O. Burden,	Edward H. Rathbun,	Samuel P. Colt,
Frederick Cook,	Stanley G. Smith,	Cyrus P. Brown.

BRISTOL BRANCH.

EZRA DIXON, *Chairman of Board.* CHARLES H. MANCHESTER, *Manager.*

BOARD OF MANAGERS.

Ezra Dixon,	H. H. Shepard,	Samuel P. Colt,
James A. Miller,	George H. Peck,	Herbert F. Bennett,
W. T. C. Wardwell,	Nath'l G. Herreshoff,	Cyrus P. Brown,
John B. Herreshoff,	J. Howard Manchester,	William H. Thompson,
P. Skinner, Jr.	W. F. Williams,	Charles H. Manchester,
Eber Hill,	Charles H. Church,	Charles B. Rockwell.

PASCOAG BRANCH.

EARLE D. STEERE, *Manager.*

WICKFORD BRANCH.

THADDEUS W. HUNT, *Manager.*

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WESTERLY BRANCH.

JAMES M. PENDLETON, *Manager.*

MECHANICS BRANCH.

CHARLES H. MANCHESTER, *Manager.*

WARREN BRANCH.

JOSEPH W. MARTIN, *Chairman of Board.*

ALFRED B. GARDNER, *Vice-Chairman.* EDWIN A. CADY, *Manager.*

BOARD OF MANAGERS.

Alfred B. Gardner,	Frank Hail Brown,	Arnold Schaer,
Luther Cole,	John H. Brown,	Frank S. Drowne
Joseph G. Luther,	James B. Drown,	Lewis T. Fisher,
Joseph W. Martin,	Seth W. Eddy,	Jeremiah Goff,
Samuel L. Peck,	Edwin A. Cady,	Samuel P. Colt,
Francis E. Dana,	Clarence H. Seymour,	Cyrus P. Brown.

RESOURCES.

Cash on hand	$1,111,371 95
Due from United States Treasurer	42,500 00
Due from banks, bankers, and trust companies	7,010,985 64
Call loans to banks and bankers	180,000 00
Call loans to individuals and corporations	6,200,203 17
Mortgages on real estate	3,559,034 24
Stocks	10,258,075 84
Bonds	8,369,950 89
Loans on personal security	7,213,432 44
Loans secured by pledge of bonds, stocks, or other collaterals	6,464,458 08
Banking houses	897,111 16
Other real estate	5,345 29
	$51,312,468 70

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LIABILITIES.

Capital stock paid in	$3,000,000 00
Surplus	4,000,000 00
Other undivided profits	1,357,811 53
Deposits (general account)	14,167,697 63
Deposits (participation account)	26,833,727 85
Bank deposits	1,928,431 23
Other deposits	24,800 46
	$51,312,468 70

MISCELLANEOUS.

Participation Account.

Whole number of depositors	40,513
" " " " $500 and under $1,000	5,446
" " " " $1,000 and upwards	7,548
Largest amount due any one depositor	$51,000 00
Amount of annual dividend	1,035,470 46
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$516,687 11
Date of last dividend	Feb. 16, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
*Amount of reserved profits at time of last dividend	$4,937,962 12

Amount loaned on mortgages in other States:—

Massachusetts	$72,160 00
Connecticut	89,449 00
Iowa	31,300 00
Virginia	5,000 00
Nebraska	25,000 00
Kansas	800 00
Florida	15,000 00
Minnesota	15,475 00
	$254,184 00

* Of the company generally, not participation.

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STOCKS OWNED BY THE COMPANY.

		BANK.	*Book Value.*
2618	shares	United National, Providence	$524,160 25
320	"	Phenix National, Providence	31,160 00
1908	"	Newport Trust Company, Newport	279,200 00
32	"	National Bank of Commerce, New York	7,360 00
20	"	Merchants National, Providence	1,600 00
19	"	First National, New York	14,535 00
3000	"	*First National, Pawtucket	25,000 00
4882	"	*Old National, Providence	490,250 61
4491	"	Fourth National, Providence	624,874 83
4684	"	Mechanics National, Providence	240,220 00
			$2,238,360 69
		RAILROAD.	
2600	shares	New York, New Haven and Hartford	$423,155 00
5300	"	Pennsylvania	351,640 62
3800	"	New York Central and Hudson River	504,512 50
970	"	United Traction and Electric Company	97,000 00
1900	"	Third Avenue, New York	226,825 00
250	"	Pittsburg, Bessemer and Lake Erie	8,250 00
2300	"	Northern Pacific	318,871 53
1000	"	Northern Pacific receipts	24,842 00
200	"	New Jersey and Hudson River Railway and Ferry Company	10,000 00
1700	"	Lehigh Valley	116,725 00
500	"	Hocking Valley	41,500 00
1500	"	Hocking Valley preferred	118,400 00
2500	"	Great Northern preferred	322,975 00
1320	"	Great Northern preferred receipts	82,325 00
1900	"	Great Northern iron ore certificates	128,600 00
3000	"	Denver and Northwestern	240,000 00
2677	"	Illinois Central	409,572 75
3000	"	Delaware, Lackawanna and Western	725,000 00
400	"	Cincinnati Northern	10,000 00
220	"	West End Street, Boston	21,432 00
100	"	West End Street preferred, Boston	11,400 00
1000	"	Southern Railway, preferred, trust certificates	88,000 00
1250	"	Chicago and Northwestern	203,400 00
210	"	Railroad Securities Company, Illinois Central stock collateral	18,780 00
331	"	Pere Marquette preferred	22,508 00
2000	"	Atchison, Topeka and Sante Fe preferred	205,538 50
2400	"	Central of New Jersey	466,437 50
1000	"	Chicago, Great Western 4s, debentures	82,750 00

* In process of liquidation, but assets not yet distributed.

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			Book Value.
500	shares	Chicago, Milwaukee and St. Paul receipts	$31,537 50
1000	"	Chicago, Milwaukee and St. Paul preferred receipts	71,000 00
1300	"	Delaware and Hudson Company	268,400 00
			$5,651,377 90

MISCELLANEOUS.

839	shares	Rhode Island Safe Deposit Company	$83,900 00
6001	"	Providence Gas Company	599,126 95
178	"	Newport Gas Light Company	28,480 00
80	"	Jersey City Water Supply Company	8,000 00
1000	"	American Telephone and Telegraph Company	130,772 50
4000	"	Consolidated Gas Company, New York	458,635 00
100	"	Electrical Securities Corporation preferred	7,500 00
1000	"	American Smelters Securities Company preferred	97,750 00
1000	"	American Tobacco Company preferred	78,637 00
2106	"	Narragansett Electric Lighting Company debenture, 1908	202,176 00
5169	"	Narragansett Electric Lighting Company	489,412 25
298	"	United States Realty and Improvement Company	19,193 18
1050	"	Providence Telephone Company	96,004 37
550	"	Title Guarantee Company of Rhode Island	68,750 00
			$2,368,337 25

BONDS OWNED BY THE COMPANY.

GOVERNMENT.	*Book Value.*
Imperial Japanese 4½s, 1925	$71,181 50
Imperial Japanese 4½s, 1925	9,100 00
	$80,281 50

STATE.

Massachusetts metropolitan sewerage loan 3s, 1935	$4,000 00
Massachusetts metropolitan water loan 3½s, 1935	4,000 00
Rhode Island Armory construction loan 3s, 1946	75,105 00
San Paulo, Brazil, exchequer bonds 5s, 1908	44,891 00
	$127,996 00

MUNICIPAL.

Bristol, R. I., 3½s, 1930	$5,288 00
Burrillville, R. I., 3½s 1939	5,225 00
East Providence, R. I., 4s, 1933	5,400 00
Lincoln, R. I., 4s, 1928	11,000 00
Pawtucket, R. I., general and highway 4s, 1923	11,100 00
Pawtucket, R. I., water 4s, 1910	1,000 00

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	Book Value.
Providence, R. I., 3s, 1930	$90,450 00
Superior, Wis., general city sewer 6s, 1911	1,000 00
Superior, Wis., street improvement 6s, 1897	3,500 00
Woonsocket, R. I., 4s, 1907	10,050 00
	$144,013 00

COUNTY AND DISTRICT.

Keith county, Neb., Paxton precinct 6s, 1908	$2,000 00
Whitman county, Wash., school district No. 117, 7s, 1910	750 00
	$2,750 00

RAILROAD.

Atchison, Topeka and Sante Fe general mortgage 4s, 1995	$4,590 00
Atchison, Topeka and Sante Fe adjustment 4s, 1995	2,425 00
Atchison, Topeka and Sante Fe (East Oklahoma division) 4s, 1928	94,000 00
Atlantic Coast Line (Louisville and Nashville collateral) 4s, 1952	46,750 00
Baltimore, Chesapeake and Atlantic 5s, 1934	15,600 00
Baltimore and Ohio 4s, 1948	10,500 00
Boston and Worcester Street 4½s, 1923	10,150 00
Broadway Surface 5s, 1924	6,360 00
Brooklyn Union Elevated 5s, 1950	106,000 00
Buffalo Railway Company 5s, 1931	56,750 00
Burlington and Missouri River 6s, 1918	1,200 00
Central Crosstown of New York 5s, 1909	9,900 00
Central of Georgia 5s, 1945	40,000 00
Chicago and Alton 3s, 1949	92,181 25
Chicago and Alton 3½s, 1950, first lien	20,718 75
Chicago and Alton equipment association 5s, 1907	7,920 00
Chicago, Burlington and Quincy 5s, 1913	2,000 00
Chicago, Cincinnati and Louisville 4½s, 1953	7,500 00
Chicago Junction Railway and Union Stock Yards 5s, 1915	78,000 00
Chicago, Milwaukee and St. Paul (Chicago and Pacific division) 6s, 1910	1,000 00
Chicago, Milwaukee and St. Paul (Hastings and Dakota division) 5s, 1910	1,000 00
Chicago, Rock Island and Pacific 4s, 2002	79,050 00
Chicago, Rock Island and Pacific 4½s, 1907	9,900 00
Chicago Southern 5s, 1907	9,800 00
Chicago, St. Louis and New Orleans (Memphis division) 4s, 1951	25,437 50
Cicero and Proviso Street 5s, 1915	22,000 00
Cincinnati Northern 4s, 1951	11,300 00
Cincinnati, Richmond and Muncie 5s, 1950	10,900 00
City and Suburban (Portland, Oregon) 4s, 1930	10,400 00
Cleveland Electric 5s, 1913	15,450 00

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	Book Value.
Cleveland, Lorain and Wheeling 5s, 1933	$17,400 00
Cleveland Terminal and Valley 4s, 1995	48,500 00
Columbus 4s, 1939	4,450 00
Columbus Street 5s, 1932	58,925 00
Connecticut Railway and Lighting 4½s, 1951	103,225 00
Delaware and Hudson 4s, 1916	90,000 00
Denver City Tramway 5s, 1919	60,030 00
Denver and Northwestern 5s, 1932	466,137 58
Des Moines, Iowa Falls and Northern 5s, 1931	14,850 00
Des Moines Street 6s, 1919	25,920 00
Detroit, Grand Rapids and Western 4s, 1946	36,375 00
Detroit United 4½s, 1932	14,175 00
Duluth Street 5s, 1930	10,250 00
East St. Louis and Suburban 5s, 1932	10,150 00
Erie Convertible 4s, 1953	45,250 00
Erie Pennsylvania collateral 4s, 1951	23,593 75
Fort Worth and Rio Grande 4s, 1928	8,000 00
Grand Avenue (Kansas City) 5s, 1908	35,850 00
Grand Rapids 5s, 1916	77,175 00
Gulf and Ship Island 5s, 1952	10,200 00
Illinois Central (Omaha division) 3s, 1951	8,600 00
Illinois Central (St. Louis division and terminal) 3½s, 1951	5,025 00
Indiana, Decatur and Western 5s, 1935	53,750 00
Indiana 5s, 1930	30,000 00
Iowa Central first 5s, 1938	25,760 00
Iowa Central first and refunding 4s, 1951	54,450 00
Jamaica and Brooklyn Road 5s, 1930	5,000 00
Kansas City Elevated 4s, 1922	49,590 00
Kansas City Railway and Lighting 5s, 1913	71,040 00
Kentucky Central 4s, 1987	15,075 00
Keokuk and Des Moines 5s, 1923	5,146 50
Knoxville and Ohio 6s, 1925	49,600 00
Lake Shore and Michigan Southern 4s, 1928	5,125 00
Lake Shore and Michigan Southern 4s, 1931	196,015 00
Lehigh and New York 4s, 1945	24,000 00
Louisville and Nashville (Atlanta, Knoxville and Cincinnati division) 4s, 1955	45,310 00
Mason City and Fort Dodge 4s, 1955	87,400 00
Merrimac Valley Street 5s, 1911	23,345 00
Metropolitan Street (Kansas City) 5s, 1910	25,125 00
Metropolitan Street (New York) 4s, 2002	48,500 00
Milwaukee Electric Railway and Lighting 5s, 1926	31,650 00
Milwaukee and Northern 6s, 1913	18,600 00
Mineral Range 5s, 1931	14,400 00
Minneapolis, Lyndale and Minnetonka 5s, 1919	106,000 00
Missouri Pacific, first collateral 5s, 1920	35,022 50
Missouri Pacific collateral notes 5s, 1908	9,950 00

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	Book Value.
Missouri Pacific trust 5s, 1917	$24,750 00
New York Central and Hudson River 3½s, 1998	9,012 50
New York, Lackawanna and Western 4s, 1923	5,000 00
New York, New Haven and Hartford 3½s, 1956	9,000 00
North Chicago Street 4½s, 1931	20,000 00
Northern Ohio 5s, 1945	56,000 00
Northern Pacific-Great Northern joint 4s, 1921	365,115 65
Northern Pacific 3s, 2047	5,005 00
Northern Pacific prior lien 4s, 1997	10,437 30
Northern Pacific Terminal Company of Oregon 6s, 1933	50,600 00
Ogdensburg and Lake Champlain 4s, 1948	18,700 00
Ohio and Little Kanawha 5s, 1950	10,100 00
Oregon Short Line 4s, 1929	101,567 96
Pawtuxet Valley Electric Street 5s, 1933	54,000 00
Peekskill Lighting and Railroad 5s, 1930	5,000 00
Pennsylvania Company (15–25 year) 4s, 1931	50,125 00
Pennsylvania Company (trustees' certificates) 3½s, 1942	171,125 00
Pennsylvania Railroad (convertible) 3½s, 1915	144,000 00
Pennsylvania Steel Car Trust 3½s, 1907	4,912 50
Pennsylvania and Mahoning Valley 5s, 1922	15,150 00
Pittsburg, Cincinnati, Chicago and St. Louis 3½s, 1949	9,275 00
Portland 5s, 1930	50,000 00
Providence and Fall River Street 5s, 1921	7,800 00
Reading Company (Jersey Central collateral) 4s, 1951	95,000 00
Rhode Island Suburban 4s, 1950	73,000 00
Rockford and Inter-Urban 5s, 1922	25,250 00
Seaboard Air Line Equipment 4½s, 1907	9,800 00
Seaboard Air Line collateral trust 5s, 1911	97,500 00
Sioux City Traction 5s, 1919	10,000 00
Southern Indiana 4s, 1951	18,600 00
Southern Pacific 2–5 year 4s, 1910	9,700 00
Southern Pacific Central Pacific collateral 4s, 1949	93,670 37
Southern Railway Company (5 year notes) 5s, 1909	88,193 75
St. Louis and San Francisco refunding 4s, 1951	181,080 50
St. Louis and San Francisco consolidated 4s, 1996	19,950 00
St. Louis and San Francisco general 6s, 1931	13,000 00
St. Louis and San Francisco general 5s, 1931	22,950 00
St. Louis, Memphis and Southeastern 4½s, 1909	96,000 00
St. Louis Southwestern 4s, 1932	172,637 50
Syracuse Rapid Transit 5s, 1946	10,420 00
Third Avenue (New York) 4s, 2000	52,187 50
Toledo and Ohio Central 5s, 1935	55,375 00
Toledo Traction 5s, 1909	34,475 00
United Traction and Electric 5s, 1933	145,030 00
Utica and Mohawk Valley 4½s, 1941	15,075 00
Vera Cruz and Pacific 4½s, 1934	98,250 00
Wisconsin Central 4s, 1949	41,250 00
	$5,687,788 56

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MISCELLANEOUS.	*Book Value.*
Alton Water Company 4½s, 1931	$10,500 00
American Tobacco Company 6s, 1944	210,912 50
American Writing Paper Company 5s, 1919	16,600 00
Chippewa Falls Water Works Company 6s, 1915	5,000 00
Cleveland Electric Illuminating Company 5s, 1927	55,200 00
Consolidated Elevator Company 6s, 1919	1,000 00
Consolidated Gas Company (convertible debentures) 6s, 1909	428,472 50
Consolidated Water Company, Utica, 5s, 1930	13,720 00
Des Moines Edison Lighting Company 5s, 1931	50,000 00
Edison Electric Company (Los Angeles) 5s, 1922	49,000 00
Edison Electric Illuminating Company (Brooklyn) 4s, 1939	48,750 00
Edison Electric Illuminating Company (New York) 5s, 1910	52,437 50
Electrical Securities Corporation 5s, 1935	9,700 00
Equitable Gas and Electric Company (Utica) 5s, 1942	52,500 00
Georgia Electric Light Company 5s, 1930	15,600 00
Georgia Railway and Electric Company 5s, 1932	5,200 00
Glens Falls Gas and Electric Lighting Company 5s, 1919	3,000 00
Grand Rapids Gas Light Company 5s, 1915	56,600 00
Harrisburg Light, Heat and Power Company 5s, 1924	5,000 00
Havana Tobacco Company 5s, 1922	41,250 00
Hudson River Power Transmission Company 5s, 1928	50,000 00
International Mercantile Marine Company 4½s, 1922	75,000 00
International Navigation Company 5s, 1929	46,250 00
Jersey City Water Supply Company 4s, 1924	52,000 00
Laclede Gas Light Company, (St. Louis) 5s, 1934	24,750 00
Manchester, N. H., Traction, Light and Power Company 5s, 1921	105,000 00
Michigan State Telephone Company 5s, 1924	10,000 00
Minneapolis General Electric Company 5s, 1934	51,000 00
Montreal Light, Heat and Power Company 4½s, 1932	25,150 00
New York and New Jersey Telephone Company 5s, 1920	10,700 00
New York and Pennsylvania Telephone and Telegraph Company 5s, 1926	10,200 00
Omaha Water Company 5s, 1946	3,750 00
Providence Telegram Publishing Company 6s, 1908	8,000 00
Puget Sound Power Company 5s, 1933	24,500 00
Quincy, Ill., Gas and Electric Company 5s, 1929	10,100 00
Richmond Passenger and Power Company 5s, 1925	57,000 00
Securities Company consols 4s	54,000 00
Silver Spring Bleaching and Dyeing Company, 6s, 1910	50,000 00
Springfield, Ohio, Light and Power Company 6s, 1922	38,110 00
St. Paul Gas Light Company 5s, 1944	10,000 00
Syracuse Gas Company 5s, 1946	15,450 00
Syracuse Lighting Company 5s, 1951	9,900 00
Times Publishing Company 6s, 1907	10,000 00
Twin City Telephone Company 5s, 1926	25,000 00
United Button Company 5s, 1916	50,000 00
Union Electric Light and Power Company 5s, 1909	9,800 00

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	Book Value.
United Electric Light and Power Company 4½s, 1929	$9,700 00
United States Realty and Improvement Company 5s, 1924	27,841 50
United States Steel Corporation 5s, 1963	190,283 66
Virginia Carolina Chemical Company 5s, 1912	29,824 17
Western Telephone and Telegraph Company 5s, 1932	9,900 00
Western Union Telegraph Company 4½s, 1950	25,500 00
Westinghouse Electric and Manufacturing Company (convertible sinking fund) 5s, 1931	48,020 00
Westinghouse Electric and Manufacturing Company (3 years) 5s, 1907	19,950 00
	$2,327,121 83

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ITALO-AMERICAN MUTUAL TRUST COMPANY, PROVIDENCE.

[Incorporated May 17, 1904.]

FRANK D. McKENDALL, *President.*

GUISTINO DEBENEDICTIS, *Vice-President.* WM. S. TODD, *Secretary.*

HAROLD R. BASSETT, *Treasurer.*

DIRECTORS.

Frank D. McKendall,	Philip Villani,	Claude C. Ball,
Guistino DeBenedictis,	Andrea Riccardi,	Pietro Simonini,
William S. Todd,	William M. Harris, Jr.,	Adamo R. Aiello,
Joseph Parlino,	William W. Dempster,	Joseph A. Latham.
	Edwin C. Pierce,	

RESOURCES.

Cash on hand	$1,745 97
Due from banks, bankers, and trust companies	4,149 33
Mortgages on real estate	19,120 00
Stocks	1,033 50
Loans on personal security	37,194 74
Loans secured by pledge of bonds, stocks, or other collaterals	11,125 00
Furniture and fixtures	711 10
Charter	250 00
	$75,329 64

LIABILITIES.

Capital stock paid in	$38,057 00
Surplus	4,000 00
Other undivided profits	290 22
Deposits (general account)	23,624 28
Deposits (participation account)	9,358 14
	$75,329 64

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	96
" " " " $500 and under $1,000	2
" " " " $1,000 and upwards	1
Largest amount due any one depositor	$1,000 00
Amount of annual dividend	131 08
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$83 90
Date of last dividend	April 15, 1907.
Rate per cent., last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$196 75

STOCKS OWNED BY THE COMPANY.

	BANK.	*Cost to Bank.*
1 shares	United National	$201 50
2 "	Industrial Trust Company	568 00
4 "	National Bank of Commerce	264 00
		$1,033 50

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KINGSTON TRUST COMPANY, KINGSTON.

[Incorporated March 28, 1905.]

JEREMIAH G. PECKHAM, *President.*

CHARLES J. GREENE, *Vice-President.* MILLARD F. PERRY, *Secretary and Treasurer.*

DIRECTORS.

Jeremiah G. Peckham,	Oliver C. Howard,	Oliver Watson,
Charles J. Greene,	John W. P. King,	Thomas J. Hoxie.
	Sanford C. Spink,	

RESOURCES.

Cash on hand	$5,988 13
Due from banks, bankers, and trust companies	9,603 42
Mortgages on real estate	7,000 00
Stocks	8,625 63
Bonds	82,495 00
Loans on personal security	12,510 00
Loans secured by pledge of bonds, stocks, or other collaterals	19,000 00
Banking house	1,500 00
	$146,722 18

LIABILITIES.

Capital stock paid in	$105,000 00
Surplus	12,600 00
Other undivided profits	3,241 22
Deposits (general account)	11,088 38
Bank deposits	14,021 18
Other deposits	771 40
	$146,722 18

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STOCKS OWNED BY THE COMPANY.

RAILROAD.	*Book Value.*
50 shares Pennsylvania	$3,365 63
MISCELLANEOUS.	
46 shares United Gas and Electric Company	$4,270 00
36 " Southeastern Electric Company	990 00
	$5,260 00

BONDS OWNED BY THE COMPANY.

RAILROAD.	*Book Value.*
Indiana 5s, 1930	$2,020 00
Great Northern 4s, 1934	3,500 00
American Falls Railway, Light and Water Company 6s, 1921	2,000 00
Indianapolis and Eastern Company 5s, 1927	5,000 00
Rochester, Syracuse and Eastern 5s, 1945	4,985 00
Pittsburg, Binghampton and Eastern 5s, 1956	5,000 00
	$22,505 00

MISCELLANEOUS.

	Book Value.
Colorado Springs Electric Company 5s, 1920	$10,000 00
Oklahoma Gas and Electric Company 5s, 1922	4,950 00
United Gas and Electric Company 5s, 1922	1,000 00
Herkimer County Light and Power Company 5s, 1930	6,000 00
Boise-Payette River Electric Company 6s, 1921	6,425 00
Winnebago Traction Company 5s, 1930	4,750 00
Youngstown, Sharon Railway Light and Power Company 5s, 1931.	4,950 00
Michigan State Telephone Company 5s, 1924	4,925 00
Houghton County Electric Light Company 5s, 1927	1,990 00
Butte E'ectric and Power Company 5s, 1951	6,000 00
Omaha Electric Light and Power Company 5s, 1933	5,000 00
Hudson River Electric Power Company 5s, 1944	4,000 00
	$59,990 00

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MANUFACTURERS TRUST COMPANY, PROVIDENCE.

(In Liquidation.)

[Incorporated 1898.]

J. EDWARD STUDLEY, *President.*

Newton D. Arnold, George L. Shepley, and

Walter Callender, *Vice-Presidents.*

George W. Lanphear, *Secretary and Treasurer.*

Clinton F. Stephens, *Assistant Treasurer*

DIRECTORS.

Newton D. Arnold,	J. Edward Studley,	Nathan B. Barton,
Charles Matteson,	Walter Callender,	Frank O. Field,
George L. Shepley,	George W. Lanphear,	Charles H. Hutchins,
	Wm. O. Blanding,	

RESOURCES.

Cash on hand	$5,566 58
Stocks	34,080 00
Bonds	3,125 00
Loans on personal security	1,700 00
Loans secured by pledge of bonds, stocks, or other collaterals	12,670 98
	$57,142 56

LIABILITIES.

Capital stock paid in	*
Surplus	*
Other undivided profits	$57,142 56

* Distributed to stockholders.

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STOCKS OWNED BY THE COMPANY.

	Book Value.
RAILROAD.	
250 shares New Hampshire Electric Railway Company preferred 295 " New Hampshire Electric Railway Company common	$12,500 00
MANUFACTURING.	
77 shares Herring Hall Marvin Safe Company	$3,080 00
60 " York Silk Mfg. Company preferred 60 " York Silk Mfg. Company, common	$6,000 00
	$9,080 00
MISCELLANEOUS.	
250 shares Hudson River Water Power Company	$12,500 00

BONDS HELD BY THE COMPANY.

New York and Westchester Townsite Company, income participating	$3,125 00

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MERCANTILE TRUST COMPANY, PROVIDENCE.

(IN LIQUIDATION.)

[Incorporated May, 1888.]

JOHN W. ANGELL, *President.*

ROBERT L. KEACH, *Secretary and Treasurer.*

DIRECTORS.

John W. Angell,	Benj. W. Persons,	Lincoln T. Seagrave,
Fred B. Evans,	Michael FitzGerald,	Robert L. Keach.
	George N. Snow,	

RESOURCES.

Cash on hand	$3,410 03
Stocks	200 00
Taxes	37 32
Loans on personal security	280 00
Profit and loss	202,138 52
Other real estate	6,909 09
Expense account	520 05
Warrants	4,767 77
Certificate of deposit with United National Bank	4,000 00
	$222,262 78

LIABILITIES.

Capital stock paid in	$222,000 00
Interest	238 59
Deposits (participation account)	24 19
	$222,262 78

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	5
Largest amount due any one depositor	$21 49

STOCKS OWNED BY THE COMPANY.

BANK.

30 shares Seattle Trust Company, Seattle, Washington	$200 00

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MERCHANTS TRUST COMPANY, PROVIDENCE.

[Incorporated June 12, 1903.]

LOUIS E. ROBINSON, *President.*

OTIS EVERETT, *Vice-President.* CHARLES H. MANCHESTER, *Secretary.*

PHILIP B. ASHLEY, *Treasurer.*

DIRECTORS.

James Harris,	Cyrus P. Brown,	Charles H. Manchester.
Louis E. Robinson,	Otis Everett,	

This company is not at present actively engaged in the prosecution of the business for which it was organized, and has no assets other than its corporate franchise; and no indebtedness or liability other than its capital stock.

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NEW ENGLAND TRUST COMPANY, PROVIDENCE.

[Incorporated March 13, 1902.]

WILLIAM R. DUNHAM, *President.*

BURTON M. FIRMAN, *Vice-President.*

WILLIAM F. TAYLOR, JR., *Vice-President and Secretary.*

J. B. HILTON, *Treasurer.*

DIRECTORS.

William R. Dunham,	William F. Taylor, Jr.,	Harry E. Reynolds,
Burton M. Finnan,	Elmer F. Twyman,	J. Barton Monroe.
	John B. Hilton,	

RESOURCES.

Cash on hand	$21,951 96
Due from banks, bankers, and trust companies	12,226 66
Stocks	264,600 00
Loans on personal security	29,749 00
Loans secured by pledge of bonds, stocks, or other collaterals	194,900 50
Thomas D. Taylor system of banking	100,000 00
Furniture and fixtures	9,746.94
Expense account	9,708 84
	$642,883 90

LIABILITIES.

Capital stock paid in	$140,000 00
Other undivided profits	27,753 92
Deposits (general account)	38,083 07
Deposits (savings department)	396,793 29
Other deposits,	29,878 51
Treasurer's checks	10,254 11
Certified checks	121 00
	$642,883 90

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	13,932
" " " " $500 and under $1,000	73
" " " " $1,000 and upwards	24
Largest amount due any one depositor	$17,000 00
Amount of annual interest allowed	7,176 98
Rate per cent., annual interest	4 per cent.
Semi-annual interest allowance	$3,681 57
Date of last semi-annual interest allowance	May 17, 1907.
Rate of annual interest for the last three years	4 per cent.

STOCKS OWNED BY THE COMPANY.

	BANK.	*Par Value.*
130 shares	Boston Banking Company	$13,000 00
1 "	New England Trust Company	100 00
1500 "	Pawtucket Security Company	150,000 00
640 "	Boston Security Company	64,000 00
375 "	Worcester Security Company	37,500 00
		$264,600 00

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NEWPORT TRUST COMPANY, NEWPORT.

[Incorporated November 15, 1901.]

FREDERICK TOMPKINS, *President.*

ANGUS MCLEOD, *Vice-President.*

THOMAS P. PECKHAM, *Secretary and Treasurer.*

DIRECTORS.

George F. Baker,	Thomas A. Lawton,	William G. Roelker,
Edward J. Berwind,	Lewis Cass Ledyard,	Thomas F. Ryan,
Charles A. Brackett,	Angus McLeod,	James Stillman,
Samuel P. Colt,	E. Rollins Morse,	Henry A. C. Taylor,
George G. Dewitt,	Levi P. Morton,	Frederick Tompkins,
Henry F. Eldridge,	J. Pierpont Morgan,	George Peabody Wetmore,
Elbridge T. Gerry,	George H. Norman,	Harry Payne Whitney,
George G. Haven,	Thomas P. Peckham,	James T. Woodward.
Jeremiah W. Horton,	Chas. L. F. Robinson,	

RESOURCES.

Cash on hand	$52,831 94
Due from United States Treasurer	8,000 00
Due from banks, bankers and trust companies	81,584 27
Mortgages on real estate	111,705 00
Stocks	139,352 36
Bonds	425,532 59
Loans on personal security	673,648 67
Loans secured by pledge of bonds, stocks, or other collaterals	263,005 37
Banking house and safe deposit vaults	171,642 00
	$1,927,302 20

LIABILITIES.

Capital stock paid in	$300,000 00
Surplus	120,000 00
Other undivided profits	43,056 63

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Deposits (general account)	$1,067,569 22
Bank deposits	18,062 48
Other deposits	278,613 87
Bills payable	100,000 00
	$1,927,302 20

STOCKS OWNED BY THE COMPANY.

	BANK	*Book Value.*
320 shares	Aquidneck National	$21,267 50
69 "	Union National	6,555 00
100 "	New England Commercial	4,500 00
		$32,322 50
	RAILROAD.	
500 shares	Third Avenue Street, New York	$62,500 00
	MISCELLANEOUS.	
310 shares	Newport Water Works	$32,000 00
32 "	Jersey City Water Supply Company	3,200 00
100 "	American Smelters Company preferred	9,329 86
		$44,529 86

BONDS OWNED BY THE COMPANY.

CITY.	*Book Value.*
Providence, R. I., 3s, 1929	$50,000 00
Providence, R. I., 3s, 1930	10,000 00
	$60,000 00
RAILROAD.	
Metropolitan Street, New York, 4s, 2002	$18,000 00
Oregon Short Line 4s, 1929	23,358 75
Southern 5s, 1909	24,375 00
Erie, Pennsylvania, collateral 4s, 1951	47,187 50
Canada Southern 5s, 1908	10,000 00
Pennsylvania 3½s, rolling stock trust series A, 1908	24,575 00
Cleveland, Akron and Columbus 4s, 1920	9,800 00
Norfolk and Western first consolidated 4s, 1996	15,000 00
Chicago and Eastern Illinois 4½s, 1911	2,000 00
Chicago and Eastern Illinois 6s, 1907	5,000 00
Detroit United first consolidated 4½s, 1932	4,775 00
Utica and Mohawk Valley 4½s, 1941	3,000 00

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	Book Value.
Boston and Worcester Street 4½s, 1923	4,000 00
Wabash 4½s, 1908	9,906 00
Lake Shore and Michigan Southern 4s, 1928	4,925 00
Chicago, Burlington and Quincy, Illinois division, 4s, 1949	8,000 00
Newport Street 5s, 1910	1,500 00
Cleveland Electric 5s, 1913	1,000 00
New York, New Haven and Hartford 4s, 1954	4,000 00
Detroit and Port Huron 5s, 1950	5,000 00
Pennsylvania convertible 3½s, 1915	29,000 00
Chicago, Burlington and Quincy 5s, 1913	5,000 00
	$259,402 25

MISCELLANEOUS.

Havana Tobacco Company 5s, 1922	$21,813 00
Jersey City Water Supply Company 4s, 1924	21,000 00
New York Gas, Electric Light, Heat and Power Company 5s, 1948	7,000 00
Beech Creek Coal and Coke Company first mortgage 5s, 1944	24,375 00
Westinghouse Electric Manufacturing Company sinking fund 5s, 1931	4,942 34
International Mercantile Marine Company 4½s, 1922	20,000 00
Grand Rapids Edison Company 5s, 1916	5,000 00
Detroit City Gas Company 5s, 1923	2,000 00
	$106,130 34

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PAWTUCKET TRUST COMPANY, PAWTUCKET.

[Incorporated May 18, 1903.]

BURTON M. FIRMAN, *President.*

THOMAS D. TAYLOR, *Vice-President.*

ELMER F. TWYMAN, *Secretary and Treasurer.*

DIRECTORS.

Burton M. Firman, Elmer F. Twyman, William F. Taylor, Jr.
Thomas D. Taylor, William R. Dunham,

RESOURCES.

Due from banks, bankers, and trust companies.....	$1,212 11
Expense account.....	58 53
Charter.....	250 00
	$1,520 64

LIABILITIES.

Capital stock paid in.....	$500 00
Other undivided profits, interest.....	13 64
Deposits (participation account).....	1,007 00
	$1,520 64

MISCELLANEOUS.

Participaiton Account.

Whole number of depositors.....	7
" " " " $1,000 and upwards.....	1
Largest amount due any one depositor.....	$1,001 00

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PHENIX TRUST COMPANY, PHENIX.

[Incorporated May 25, 1899.]

RICHARD G. HOWLAND, *President.*

GEORGE E. SHELDON, *Secretary and Treasurer.*

DIRECTORS.

Richard G. Howland,	Vernum A. Bailey,	Daniel Howland,
Daniel Babcock,	Albert G. Sprague,	Henry T. White,
Presbary Hoxie,	Edwin C. Capwell,	George E. Sheldon.
	Byron Read,	

RESOURCES.

Cash on hand	$9,791 94
Due from banks, bankers, and trust companies	90,011 27
Mortgages on real estate	131,069 00
Stocks	3,500 00
Bonds	10,175 00
Loans on personal security	115,643 55
Loans secured by pledge of bonds, stocks, or other collaterals	20,795 00
Banking house	2,000.00
Furniture and fixtures	500 00
Expense account	554 33
	$384,040 09

LIABILITIES.

Capital stock paid in	$100,000 00
Surplus	24,000 00
Other undivided profits	28,414 04
Deposits (general account)	49,588 40
Deposits (participation account)	179,941 06
Bank deposits	657 84
Other deposits	970 00
Dividends unpaid	468 75
	$384,040 09

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	433
" " " " $500 and under $1,000	62
" " " " $1,000 and upwards	47
Largest amount due any one depositor	$5,304 80
Amount of annual dividend	6,025 12
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$3,111 55
Date of last dividend	Feb. 16, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
*Amount of reserved profits at time of last dividend	$43,672 73

STOCKS OWNED BY THE COMPANY.

MISCELLANEOUS.	*Cost to Bank.*
50 shares Pawtuxet Valley Water Company preferred 6s,	$2,500 00
10 " Title Guarantee Company of Rhode Island	1,000 00
	$3,500 00

BONDS HELD BY THE COMPANY.

RAILROAD.	
Minneapolis, Lyndale and Minnetonka 5s, 1919	$4,700 00
New York Central and Hudson River 4s, gold debenture, 1934	4,875 00
Pawtuxet Valley Electric Street 5s, 1933	600 00
	$10,175 00

* Reserved profits of the company, not particularly of participation account.

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PRODUCERS TRUST COMPANY, WOONSOCKET.

[Incorporated November, 1901.]

GEO. H. BAKER, *President.* · SAMUEL L. COOK, *Secretary and Treasurer.*

DIRECTORS.

George H. Baker,	George Batchelor,	Wm. Orrell,
George H. Mowry,	Chas. H. Horton,	Samuel P. Cook.
	Jonathan B. Farnum,	

RESOURCES.

Due from banks, bankers, and trust companies.....	$569 23
Bonds.....	4,900 00
	$5,469 23

LIABILITIES.

Capital stock paid in.....	$5,000 00
Other undivided profits.....	469 23
	$5,469 23

BONDS HELD BY THE COMPANY.

MUNICIPAL.	*Cost to Bank.*
Woonsocket, R. I., 4s	$1,000 00
MISCELLANEOUS.	
Tri-City Railway, Light and Power Company, 5s.....	$3,900 00
	$4,900 00

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PROVIDENCE TRUST COMPANY, PROVIDENCE.

[Incorporated April 30, 1890.]

WILLIAM E. SARGENT, *President.*

FOREST W. DUNLAP, *Secretary.* ISAAC S. COWAN, *Treasurer.*

DIRECTORS.

William E. Sargent, Isaac S. Cowan, Forest W. Dunlap.

RESOURCES.

Furniture and fixtures	$30,000 00

LIABILITIES.

Capital stock paid in	$30,000 00

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RHODE ISLAND HOSPITAL TRUST COMPANY, PROVIDENCE.

[Incorporated May, 1867.]

HERBERT J. WELLS, *President.*

EDWARD S. CLARK, HORATIO A. HUNT, *Vice-Presidents.*

WILLIAM A. GAMWELL, *Secretary.* PRESTON H. GARDNER, *Trust Officer.*

CYRUS E. LAPHAM, JOHN E. WILLIAMS, HENRY L. SLADER, WALTER G. BROWN, *Assistant Secretaries.*

DIRECTORS.

Royal C. Taft,	John W. Danielson,	Walter R. Callender,
Robert H. I. Goddard,	Herbert J. Wells,	Gilbert A. Phillips,
George W. R. Matteson,	John C. Pegram,	Edward Holbrook,
William D. Ely,	Lyman B. Goff,	James E. Sullivan,
Robert I. Gammell,	Rowland G. Hazard,	Benjamin M. Jackson,
William Binney,	Nelson W. Aldrich,	John R. Freeman,
William B. Weeden,	Samuel R. Dorrance,	Charles S. Mellen,
Edward D. Pearce,	Howard O. Sturges,	Robert W. Taft.
Robert Knight,	Stephen O. Metcalf,	

RESOURCES.

Cash on hand	$1,337,229 57
Due from United States Treasurer	43,000 00
Due from banks, bankers, and trust companies	2,992,905 04
Call loans to banks and bankers	278,530 00
Call loans to individuals and corporations	1,687,764 34
Mortgages on real estate	3,208,630 85
Stocks	2,710,352 58
Bonds	8,982,244 88
Loans on personal security	8,080,515 15
Loans secured by pledge of bonds, stocks, or other collaterals	2,950,996 86
Banking house	350,000 00
Other real estate	203,368 34
	$32,825,537 61

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LIABILITIES.

Capital stock paid in	$1,000,000 00
Surplus	1,500,000 00
Other undivided profits, less expenses	591,264 66
Deposits (general account)	13,279,760 34
Certificates of deposit	4,197,881 32
Deposits (participation account)	11,338,306 03
Bank deposits	170,002 35
Other deposits	719,382 91
Reserve for taxes	28,800 00
Dividends unpaid	140 00
	$32,825,537 61

MISCELLANEOUS.

Participation Account.

Whole number of depositors	4,900
" " " " $500 and under $1,000	1,165
" " " " $1,000 and upwards	2,542
Largest amount due any one depositor	$141,705 25
Amount of annual dividend	409,730 59
Rate per cent., annual dividend	3¾ per cent.
Amount of last dividend	$216,548 37
Date of last dividend	May 10, 1907.
Rate per cent., of last dividend	2 per cent., 6 mos.
Average rate of dividend for the last three years	3.583+ per cent.
Amount of reserved profits of the company at time of last dividend	$1,962,242 67

Amount loaned on mortgages in other States:—

Illinois	$323,500 00
Iowa	653,889 00
Nebraska	431,400 00
Minnesota	298,591 85
Kansas	255,500 00
So. Dakota	48,400 00
	$2,011,280 85

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STOCKS HELD BY THE COMPANY.

			Book Value.
		BANKS AND TRUST COMPANIES.	
100	shares	National Bank of Commerce, Providence	$5,000 00
6942	"	Merchants National, Providence	520,650 00
*19919	"	American National, Providence	179,048 00
5539	"	Blackstone Canal National, Providence	193,865 00
†5000	"	First National, Providence	2,500 00
100	"	United States Trust Company, New York	75,000 00
100	"	Washington Trust Company, Westerly, R. I.	15,000 00
50	"	Minnesota Loan and Trust Company, Minn.	5,000 00
59	"	R. I. Hospital Trust Company, Providence	295,000 00
			$1,291,063 00
		RAILROADS.	
1200	shares	Illinois Central	$120,000 00
228	"	Providence, Warren and Bristol	22,800 00
400	"	Rome, Watertown and Ogdenburg (guaranteed)	40,000 00
50	"	Providence and Worcester	10,000 00
250	"	Hereford	25,000 00
1000	"	Pittsburg, Bessemer and Lake Erie (guaranteed)	34,375 00
500	"	Second Avenue (guaranteed)	100,000 00
10	"	Northern Securities Company	1,000 00
2000	"	Manhattan	274,575 00
2078	"	New York, New Haven and Hartford	311,700 00
1000	"	Pennsylvania	50,000 00
400	"	Northern Pacific	40,000 00
1000	"	Great Northern preferred	128,457 08
525	"	New England Investment and Security Company preferred	50,000 00
‡600	"	Northern Pacific "new stock"	21,382 50
			$1,229,289 58
		MANUFACTURING.	
114	shares	Wauregan Company	$10,500 00
		MISCELLANEOUS.	
200	shares	Title Guarantee Company of Rhode Island	$25,000 00
1050	"	John N. Mason Real Estate Company	136,500 00
360	"	Great Northern Iron Ore Properties	18,000 00
			$179,500 00

*110 per cent. paid in liquidation.
†140 per cent. paid in liquidation.
‡25 per cent. paid.

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BONDS HELD BY THE COMPANY.

GOVERNMENT.	*Par Value.*
†United States 4s, 1925	$1,000,000 00
Imperial Japanese Government sterling 4½s, 1925	*71,300 00
	$1,071,300 00
STATE.	
Massachusetts registered gold 3s, 1923	$100,000 00
Rhode Island registered gold 3½s, 1914	30,000 00
Rhode Island gold 3s, 1938	800,000 00
Rhode Island gold 3s, 1941	70,000 00
	$1,000,000 00
CITY.	
Boston registered 3½s, 1919	$100,000 00
Providence registered gold 4s, 1926	100,000 00
St. Paul "sewer bonds" 5s, 1908	50,000 00
Minneapolis "park bonds" 4½s, 1913	50,000 00
Chicago 4s, 1921	50,000 00
Knoxville, Tenn., gold 5s, 1921	25,000 00
Indianapolis refunding 4s, 1915	45,000 00
Des Moines assessment certificates, 5½s, 1911	13,556 29
	$433,556 29
RAILROAD.	
Chicago, Burlington and Quincy debenture 5s, 1913	$50,000 00
Chicago, Burlington and Quincy mortgage 3½s, 1949	183,000 00
Burlington and Missouri in Nebraska 6s, 1908 to 1918	38,000 00
Keokuk and Des Moines first mortgage 5s, 1923	9,600 00
Dayton and Michigan 5s, 1911	100,000 00
New York Central and Hudson River, Lake Shore collateral registered gold 3½s, 1998	100,000 00
Chicago, Milwaukee and St. Paul, Dubuque division, 6s, 1920	50,000 00
Fargo and Southern first mortgage gold 6s, 1924	50,000 00
Chicago and Northwestern debenture 5s, 1909	75,000 00
Eastern Railway of Minnesota 5s, 1908	50,000 00
Lehigh Valley first mortgage gold 4½s, 1940	75,000 00
Minn. Street consolidated mortgage gold 5s, 1919	150,000 00
Columbus Street first consolidated mortgage gold 5s, 1932	60,000 00
United Traction and Electric gold 5s, 1933	300,000 00
Cleveland Electric mortgage gold 5s, 1913	206,000 00
Cleveland, Loraine and Wheeling first mortgage consolidated gold 5s, 1933	50,000 00

*Carried at book value.
†Of which $500,000 are loaned to a National bank on call.

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	Par Value.
New York, New Haven and Hartford 50-year debenture 4s, 1947.	$50,000 00
†New York, New Haven and Hartford convertible 3½s debenture certificates, 1956; par $270,000	*195,267 96
North Chicago Street mortgage 5s, 1909	50,000 00
Providence and Worcester first mortgage 4s, 1947	50,000 00
St. Paul, Minnesota, and Manitoba consolidated mortgage gold 4½s, 1933	100,000 00
Buffalo Traction first mortgage gold 5s, 1948	100,000 00
Baltimore and Ohio prior lien gold 3½s, 1925	236,000 00
Baltimore and Ohio first mortgage gold 4s, 1948	28,000 00
Denver City Tramway first mortgage gold 5s, 1919; par $10,000.	*9,000 00
Kings County Elevated first mortgage gold 4s, 1949; par $41,000	*32,800 00
Lynn and Boston first mortgage gold 5s, 1924	50,000 00
Seattle Electric first mortgage gold 5s, 1930	50,000 00
Seattle Electric 5-year 5s, coupon notes, 1911	100,000 00
Brooklyn Union Elevated first mortgage gold 5s, 1950; par $100,000	*98,000 00
Detroit and Port Huron Short Line first mortgage gold 5s, 1950..	50,000 00
Northern Pacific-Great Northern Joint C. B. and Q. 4s, 1921; par $500,000	*496,375 00
Chicago, Rock Island and Pacific general mortgage gold 4s, 1988.	100,000 00
East St. Louis and Suburban 5 per cent. gold collateral trust, 1932; par $130,000	*127,000 00
Dallas Electric Corporation first mortgage collateral trust gold 5s, 1922; par $50,000	*44,809 38
Lake Shore and Michigan Southern 25-year gold 4s, 1928; par $100,000	*95,250 00
United Electric Securities collateral trust sinking fund 5s, 1934..	12,000 00
Detroit United first consolidated mortgage 4½s, 1932; par $100,000	*93,500 00
Interborough Rapid Transit 4 per cent. 3-year gold notes, 1908; par $200,000	*197,000 00
Danville, Urbana and Champaign gold 5s, 1923	25,000 00
Milwaukee Electric Railway and Light refunding and extending mortgage gold 4½s, 1931	25,000 00
Rhode Island Suburban first mortgage 4 per cent. gold, 1950; par $40,000	*36,800 00
Springfield (Ill.) Railway and Light 5 per cent. collateral trust gold, 1933; par $25,000	*24,500 00
Southern 5 per cent. 3-year notes, 1910; par $50,000	*48,500 00
New York Central and Hudson River 5 per cent. 3-year notes, 1910; par $100,000	*99,687 50

*Carried at book value.

	Par value.	*Book value.*
†Part paid	$200,000 00	$165,455 96
Full paid	70,000 00	79,812 00

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	Par Value.
Chicago and Western Indiana 5 per cent. collateral trust 3-year notes, 1910; par $50,000	$*49,250 00
Detroit United 5 per cent. collateral trust gold notes, 1910; par $50,000	*47,375 00
Lake Shore and Michigan Southern 5 per cent. 3-year notes, 1910; par $50,000	*49,812 50
Portland (Ore.) Railway, Light and Power 5 per cent. 3-year gold notes, 1910; par $25,000	*23,830 00
Pennsylvania 5 per cent. 3-year collateral gold notes, 1910; par $200,000	*198,060 00
Denver and Northwestern first collateral mortgage 30-year 5 per cent. gold, 1932; par $25,000	*24,000 00
	$456,357 34

MISCELLANEOUS.

Chicago Junction Railways and Union Stock Yards gold 5s, 1915.	$75,000 00
Manville first mortgage 5s, 1913	115,000 00
Social Manufacturing Company first mortgage 4½s, 1902—extended	15,000 00
United States Finishing Company first mortgage sinking fund gold 5s, 1919	52,000 00
American Telephone and Telegraph Company collateral trust 4s, 1929; par $150,000	*146,000 00
Solvay Process Company debentures 5s, 1910	193,000 00
St. Louis National Stock Yards first mortgage gold 4s, 1930; par $50,000	*49,750 00
Lackawanna Steel Company first mortgage convertible gold 5s, 1923; par $50,000	*47,000 00
Dodge Manufacturing Company first mortgage gold 6s, 1909–1911	20,000 00
United States Rubber Company 5 per cent. collateral funding gold notes, 1908; par $100,000	*99,468 75
Public Service Corporation of N. J. 5 per cent. collateral gold notes, 1909	50,000 00
Minneapolis General Electric Company 5 per cent. 30-year mortgage gold, 1934	50,000 00
Simmons Warehouse Company first mortgage 5 per cent. sinking fund gold, 1915	50,000 00
Edison Electric Company (Los Angeles) 5 per cent. first mortgage refunding gold, 1922	50,000 00
Edison Electric Illuminating Company of New York 5 per cent. first mortgage, gold, 1910	25,000 00
American Telephone and Telegraph Company 5 per cent. 3-year gold coupon notes, 1910; par $250,000	*241,250 00
Silver Spring Bleaching and Dyeing Company first mortgage 6s, 1910	50,000 00

*Carried at book value.

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	Par Value.
Lackawanna Steel Company 5 per cent. 2-year secured gold notes, 1909; par $50,000	$*48,750 00
American Telephone and Telegraph Company convertible 4 per cent. gold, 1936; par $100,000	*92,500 00
Boston Rubber Shoe Company 5 per cent. 10-year gold debentures, 1908; par $100,000	*97,750 00
Silversmiths Company certificates of indebtedness, 1910	250,000 00
North American Company 5 per cent. 5-year collateral trust gold notes, 1912; par $50,000	*46,812 50
Tidewater Construction Company 6 per cent. 2-year notes, 1909; par $50,000	*49,750 00
	$1,914,031 25

*Carried at book value

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RHODE ISLAND MORTGAGE AND TRUST COMPANY, PROVIDENCE.

(IN LIQUIDATION.)

[Incorporated May, 1887.]

ISRAEL B. MASON, *President.*

FRANCELLO G. JILLSON, *Vice-President.*

J. M. BUFFINTON, *Secretary and Treasurer.*

DIRECTORS.

I. B. Mason, F. G. Jillson, B. A. Ballou, J. M. Buffinton.

RESOURCES.

Cash on hand	$2,054 99
Mortgages on real estate	1,575 00
Stocks	1,125 50
Bonds	2,000 00
Real estate	500 00
Expense account	1 60
Profit and loss account	59,201 03
	$66,458 12

LIABILITIES.

Capital stock paid in	$66,407 50
Interest account	50 62
	$66,458 12

MISCELLANEOUS.

Amount loaned on mortgages in other States:	
Missouri	$1,575 00

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STOCKS OWNED BY THE COMPANY.

BANK.	*Market Value.*
149 shares R. I. Mortgage and Trust Company.....	
MISCELLANEOUS.	
40 shares Belmont Irrigating Canal and Water Power Company.	$1,125 50

BONDS OWNED BY THE COMPANY.

	Par Value.
Hinsdale county, Colorado.....	$2,000 00

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SLATER TRUST COMPANY, PAWTUCKET.

[Incorporated February, 1900.]

FRANK A. SAYLES, *President.* HOWARD W. FITZ, *Vice-President.*
ANDREW E. JENCKS, *Secretary and Treasurer.*

DIRECTORS.

John A. Arnold,	Howard W. Fitz,	Charles O. Read,
Edward S. Bowen,	Stephen A. Jenks,	Frank A. Sayles,
Clovis H. Bowen,	Albert A. Jenks,	Joseph L. Sweet,
Alfred M. Coats,	George L. Miller,	George H. Webb.
Frederic W. Easton,	George W. Newell,	

RESOURCES.

Cash on hand	$246,890 45
Due from United States Treasurer	7,000 00
Due from banks, bankers, and trust companies	471,312 11
Call loans to individuals and corporations	1,025,307 52
Mortgages on real estate	620,869 01
Stocks	923,284 49
Bonds	1,962,312 58
Loans on personal security	2,472,867 68
Loans secured by pledge of bonds, stocks, or other collaterals	252,623 44
Banking house	280,000 00
Other real estate	92,500 00
	$8,354,967 28

LIABILITIES.

Capital stock paid in	$500,000 00
Surplus	500,000 00
Other undivided profits, less expenses	344,609 24
Deposits (general account)	3,173,400 76
Deposits (participation account)	3,766,327 19
Bank deposits	70,630 09
	$8,354,967 28

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	8,808
" " " " $500 and under $1,000	906
" " " " $1,000 and upwards	1,048
Largest amount due any one depositor	$15,170 00
Amount of annual dividend	130,140 24
Rate per cent. of annual dividend	4 per cent.
Amount of last dividend	$67,317 02
Date of last dividend	April 16, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$797,400 78
Amount loaned on mortgages in other States:—	
Massachusetts	$2,350 00

STOCKS OWNED BY THE COMPANY.

			Book Value.
		RAILROAD.	
200	shares	New York, New Haven and Hartford	$38,494 50
500	"	Great Northern preferred, 50 per cent. paid	36,993 75
1200	"	Pennsylvania	82,950 00
200	"	Erie first preferred	16,525 00
200	"	Reading 2d preferred	18,825 00
500	"	Kansas City, Fort Scott and Memphis preferred	41,850 00
220	"	Tri-City Railway and Light Company preferred	20,350 00
250	"	New Hampshire Traction Company, preferred and common	45,000 00
			$300,988 25
		MANUFACTURING.	
350	shares	General Electric Company	$53,418 75
200	"	Pullman Company	33,575 00
1200	"	Pawtucket Gas Company preferred	114,022 00
63	"	Acme Harvesting Machine Company	1,500 00
2572	"	Narragansett Electric Light Company	367,119 99
1357	"	Narragansett Electric Light Company debentures	
200	"	Union Buffalo Mills Company first preferred	40,000 00
200	"	Union Buffalo Mills Company 2d preferred	
			$609,635 74

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MISCELLANEOUS.	*Book Value.*
25 shares Title Guarantee Company of Rhode Island	$3,125 00
100 " Electrical Securities Corporation preferred	9,535 50
	$12,660 50

BONDS OWNED BY THE COMPANY.

STATE.	*Book Value.*
Massachusetts 3½s, 1944	$20,000 00
Massachusetts 3½s, 1938	60,000 00
Massachusetts 3½s, 1943	20,000 00
	$100,000 00

MUNICIPAL.	
Pawtucket 3½s, 1939	$50,000 00
Jersey City 5s, 1913	8,000 00
Boston 3½s, 1933	30,000 00
Boston 3½s, 1920	5,000 00
Boston 3½s, 1940	15,000 00
	$108,000 00

RAILROAD.	
Atchison, Topeka and Sante Fe 4s, 1995	$50,000 00
Atchison, Topeka and Sante Fe 4s, 1955	5,000 00
Birmingham Railway, Light and Power Company 4½s, 1954	47,500 00
Boston Elevated 4s, 1935	25,000 00
Columbus 4s, 1939	10,000 00
Cincinnati, Hamilton and Dayton 4s, 1954	23,500 00
Cincinnati, Hamilton and Dayton 4½s, 1908	24,593 75
Chicago, Burlington and Quincy 4s, 1949	50,000 00
Chicago Electric Transit Company 6s, 1914	15,000 00
Chicago, Rock Island and Pacific 4s, 1934	47,906 25
Chicago, Rock Island and Pacific 4s, 2002	20,031 25
Cincinnati, Richmond and Muncie 5s, 1950	25,000 00
Detroit United 4½s, 1932	24,125 00
Detroit and Port Huron Shore Line 5s, 1950	20,000 00
Delaware and Hudson 4s, 1916	10,000 00
Fort Smith Light and Traction 5s, 1944	9,000 00
Gulf and Ship Island 5s, 1952	25,000 00
Jacksonville Railway and Light Company 5s, 1931	40,000 00
Lake Shore and Michigan Southern 4s, 1928	25,000 00
Lake Shore and Michigan Southern 4s, 1931	72,437 58
Louisville and Eastern 5s, 1956	25,000 00
Massachusetts Electric Companies 4½s, 1910	24,500 00
New York, New Haven and Hartford 3½s, 1956	3,750 00

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	Book Value.
New York, New Haven and Hartford 4s, 1955	100,000 00
Norfolk and Southern 5s, 1954	50,000 00
Norfolk and Southern 5s, 1954	250,000 00
North Chicago Street 4½s, 1931	20,000 00
North Jersey Street 4s, 1948	39,500 00
New York Central and Hudson 4s, 1934	24,375 00
New Orleans and Great Northern 5s, 1955	15,000 00
Oregon Short Line 4s, 1929	24,312 50
Pennsylvania 4s, 1931	25,000 00
St. Paul, Minnesota and Manitoba 4½s, 1933	10,000 00
Southern Pacific 4s, 1955	29,125 00
Southern Indiana 4s, 1951	27,900 00
St. Louis Transit 5s, 1924	24,250 00
St. Louis, Rocky Mountain and Pacific 5s, 1955	12,500 00
Wilkes-Barre and Hazleton 5s, 1951	34,550 00
Youngstown and Sharon Railway and Light 5s, 1931	25,000 00
	$1,333,856 33

MISCELLANEOUS.

American Telephone and Telegraph Company 5s, 1910	$24,250 00
Central Electric Company 5s, 1940	24,946 25
Continental Coal Company (guaranteed Hocking Vy. R. R.) 5s, 1952	10,000 00
Columbus Power Company 5s, 1936	13,440 00
Detroit Edison Company 5s, 1933	25,000 00
Electrical Development Company of Ontario 5s, 1933	28,500 00
Harrisburg Light, Heat and Power 5s, 1924	10,000 00
Iowa Falls Electric Light and Power 5s, 1912	15,000 00
Laclede Gas Light Company 5s, 1934	25,000 00
Ontario Power Company 5s, 1943	24,500 00
Oneonta Light and Power Company 5s, 1922	9,750 00
Oklahoma Gas and Electric Company 5s, 1922	38,500 00
Peoples Gaslight and Coke Company 5s, 1947	25,000 00
Pawtucket Gas Company 4s, 1932	113,570 00
Pacific Gas and Electric Company 6s, 1910–16	23,000 00
Western Union Telegraph Company 4½s, 1950	10,000 00
	$420,456 25

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UNION TRUST COMPANY, PROVIDENCE.

[Incorporated Bank of America, 1851; Union Trust Company, 1890.]

J EDWARD STUDLEY, *President.*

MARSDEN J. PERRY, *First Vice-President.*

NEWTON D. ARNOLD, CORNELIUS S. SWEETLAND GEORGE L. SHEPLEY,
MICHAEL F. DOOLEY, ARCHIBALD G. LOOMIS.
Vice-Presidents.

GEORGE W. LANPHEAR, *Vice-President and Treasurer.*

CLINTON F. STEVENS, *Assistant Treasurer.*

FRANCIS E. BATES, *Assistant Treasurer.* FRANK E. CHAFEE, *Secretary.*

CHARLES H. W. MANDEVILLE, *Comptroller.*

DIRECTORS.

Marsden J. Perry,	Walter Callender,	Cornelius S. Sweetland,
Newton D. Arnold,	Clarence L. Watson,	Nathan B. Barton,
Henry L. Greene,	Charles H. Merriman,	Benjamin A. Jackson,
Charles Matteson,	Charles B. Humphrey,	Frank O. Field,
Joseph E. Fletcher,	Charles S. Bush,	Charles H. Hutchins,
George L. Shepley,	Arthur H. Watson,	Albert A. Remington,
Samuel M. Nicholson,	Michael F. Dooley,	George W. Lanphear,
J. Edward Studley,	Frederick S. Peck,	Archibald G. Loomis.
Charles Alexander,	William O. Blanding,	

RESOURCES.

Cash on hand	$797,650 43
Due from United States Treasurer	63,500 00
Due from banks, bankers, and trust companies	3,156,302 81
Call loans to banks and bankers	415,041 28
Call loans to individuals and corporations	4,915,148 83
Mortgages on real estate	518,975 50
Stocks	4,361,957 00
Bonds	672,550 00
Loans on personal security	5,840,852 94

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Loans secured by pledge of bonds, stocks, or other collaterals	$7,489,306 90
Other real estate	7,050 00
	$28,238,335 69

LIABILITIES.

Capital stock paid in	$500,000 00
Surplus	2,250,000 00
Other undivided profits	22,709 40
Deposits (general account)	10,584,004 68
Deposits (savings department)	11,410,992 19
Bank deposits	344,767 34
Other deposits	462,249 04
Certificates of deposits	2,570,488 84
Reserved for taxes	93,124 20
	$28,238,335 69

MISCELLANEOUS.

Savings Department.

Whole number of depositors	25,209
" " " " $500 and under $1,000	2,422
" " " " $1,000 and unwards	3,020
Largest amount due any one depositor	$49,607 20
Amount of annual interest	427,419 69
Rate per cent., annual interest	4 per cent.
Amount of last interest	219,168 84
Date of last interest	March 1, 1907
Average rate of interest for the last three years	4 per cent.
Amount of reserved profits at time of last interest	$2,203,881 36

STOCKS OWNED BY THE COMPANY.

	BANK.	*Book Value.*
200 shares	American Exchange National, New York, N. Y.	$55,000 00
100 "	Eliot National, Boston, Mass.	25,000 00
840 "	First National, Attleboro, Mass.	178,082 00
3412 "	Merchants National, Providence	296,294 00
3833 "	National Exchange, Providence	1,359,131 00

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			Book Value.
1500	"	Slater Trust, Pawtucket	$412,500 00
240	"	Trust Company of America, New York, N. Y.	184,875 00
			$2,510,882 00

RAILROAD.

100	shares	Chicago and Alton (old issue)	$15,000 00
3085	"	Denver and Northwestern	246,800 00
500	"	Pere Marquette preferred	30,000 00
1000	"	Manhattan	130,000 00
3000	"	United Traction and Electric Company	303,000 00
			$724,800 00

MANUFACTURING.

600	shares	Gorham Manufacturing Company preferred	$72,000 00
89	"	Silversmiths Company	8,900 00
			$80,900 00

MISCELLANEOUS.

1000	shares	Broadway Securities Company	$125,000 00
500	"	City Realty Corporation	500,000 00
450	"	Electrical Securities Corporation preferred	45,000 00
1350	"	General Electric Company	182,250 00
1375	"	Narragansett Electric Lighting Company	130,625 00
500	"	Title Guarantee Company of Rhode Island	62,500 00
			$1,045,375 00

BONDS OWNED BY THE COMFANY.

STATE. *Book Value.*

Rhode Island 3½s, 1934	$5,000 00

TOWN.

Burrillville, R. I., 3½s, 1939	$25,000 00
Cranston, R. I., 3½s, 1939	15,000 00
Warwick, R. I., 3½s, 1932	4,750 00
	$44,750 00

DISTRICT.

Narragansett improvement 4s, 1919	$50,000 00

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RAILROAD.	*Book Value.*
New York, New Haven and Hartford convertible debenture 3½s, 1956	$62,500 00
North Jersey Street 4s, 1948	60,900 00
Denver and Northwestern 5s, 1932	92,000 00
Globe Street 5s, 1910. 1912	48,000 00
Rhode Island Suburban 4s, 1950	92,000 00
	$355,400 00

MISCELLANEOUS.	
Detroit City Gas Company 5s, 1913–1916	$20,000 00
Hudson River Water Power Company 5s, 1914–1929	22,500 00
Providence, Fall River and Newport Steamboat Company 5s, 1916	7,500 00
Electrical Securities Corporation, fourth series 5s, 1936	87,000 00
Springfield (Ohio) Light and Power Company 6s, 1922	20,000 00
L. A. Tillinghast Company 6s, 1915	21,000 00
C. Moench Sons Company 6s, 1910	20,650 00
Vaughan Machine Company 5s, 1911	18,750 00
	$217,400 00

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WAKEFIELD TRUST COMPANY, WAKEFIELD.

[Incorporated 1890.]

BENJAMIN F. ROBINSON, *President.*

JOHN E. BABCOCK, *Secretary and Treasurer.*

DIRECTORS.

John Babcock,	J. V. B. Watson,	John A. Allen,
Benj. F. Robinson,	J. C. Tucker,	Wm. G. Gould,
John E. Babcock,	Benj. W. Palmer,	Dr. R. R. Robinson.

RESOURCES.

Cash on hand	$38,006 18
Due from banks, bankers and trust companies	38,749 82
Call loans to individuals and corporations	10,000 00
Mortgages on real estate	35,300 00
Stocks	88,526 50
Bonds	60,640 00
Loans on personal security	111,116 31
Loans secured by pledge of bonds, stocks, or other collaterals	12,850 00
Furniture and fixtures	6,000 00
	$401,188 88

LIABILITIES.

Capital stock paid in	$100,000 00
Surplus	40,000 00
Other undivided profits	15,387 37
Deposits (general account)	159,461 29
Deposits (participation account)	62,490 63
Bank deposits	23,557 27
Dividends unpaid	292 25
	$401,188 81

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	56
" " " " $500 and under $1,000	19
" " " " $1,000 and upwards	16
Largest amount due any one depositor	$12,500 00
Amount of annual dividend	2,194 43
Rate per cent., annual dividend	4 per cent.
Amount of last dividend	$1,115 10
Date of last dividend	Feb. 1, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$11,606 54

STOCKS OWNED BY THE COMPANY.

	Book Value.
BANK.	
28 shares Wakefield Trust Company	$2,000 00
RAILROAD.	
374 shares Pennsylvania	$23,750 00
150 " Southern preferred	14,900 00
125 " Atchison, Topeka and Sante Fe preferred	9,400 00
50 " Missouri Pacific	5,000 00
10 " Union Pacific	1,000 00
100 " Erie first preferred	8,425 00
50 " New Hampshire Electric Railways preferred 59 " New Hampshire Electric Railways common	6,000 00
	$68,475 00
MISCELLANEOUS.	
60 shares General Electric Company	$9,301 50
100 " United States Steel Corporation preferred	8,750 00
	$18,051 50

BONDS OWNED BY THE COMPANY.

	Book Value.
MUNICIPAL.	
Evansville, Ind., refunding 4s, 1912	$1,000 00
Evansville, Indiana, refunding 4½s, 1912	1,000 00
	$2,000 00

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RAILROAD.	*Book Value.*
Central Vermont first mortgage 4s, 1920	$4,000 00
Great Northern of Canada guaranteed first mortgage 4s, 1950	3,750 00
Southern Pacific Company C. P. collateral mortgage 4s, 1949	1,500 00
Louisville-Nashville Southern Monon collateral 4s, 1952	1,500 00
Central of Georgia first consolidated 5s, 1945	7,200 00
Youngstown-Sharon Street first mortgage 5s, 1931	4,900 00
Albany and Susquehanna convertible mortgage 3½s, 1916	5,790 00
Delaware and Hudson convertible 4s, 1916	5,500 00
	$34,140 00

MISCELLANEOUS.	
St. Croix Power Company first mortgage 5s, 1929	$5,000 00
Concord Electric Company first mortgage 5s, 1931	5,000 00
Haverhill Gas Securities Company 5s, 1914	5,000 00
Detroit Edison Company first mortgage 5s, 1933	5,000 00
United Fruit Company serial debentures 6s, 1916	4,500 00
	$24,500 00

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WASHINGTON TRUST COMPANY, WESTERLY.

[Incorporated January, 1902.]

CHARLES PERRY, *President.* CHARLES P. COTTRELL, *Vice-President.*
ARTHUR L. PERRY, *Secretary and Treasurer.*

DIRECTORS.

Edgar H. Cottrell,	Arthur Perry,	John T. Edmond,
Charles Perry,	Edwin R. Allen,	William D. Hoxie,
Edwin Babcock,	John Champlin,	Edward E. Bradley,
William Hoxsey,	C. Clarence Maxson,	Arthur M. Cottrell,
Charles P. Cottrell,	William Segar,	Charles E. Sherman.
George H. Utter,		

RESOURCES.

Cash on hand	$57,484 12
Due from banks, bankers, and trust companies	123,180 27
Mortgages on real estate	595,337 41
Stocks	193,900 00
Bonds	2,103,250 00
Loans on personal security	557,709 47
Loans secured by pledge of bonds, stocks, or other collaterals	351,703 70
Banking house	12,000 00
Other real estate	6,202 00
	$4,000,766 97

LIABILITIES.

Capital stock paid in	$200,000 00
Surplus	200,000 00
Other undivided profits	63,791 98
Deposits (general account)	750,995 02
Deposits (participation account)	2,775,793 95
Bank deposits	10,186 02
	$4,000,766 97

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MISCELLANEOUS.

Participation Account.

Whole number of depositors	4,601
" " " " $500 and under $1,000	614
" " " " $1,000 and upwards	835
Largest amount due any one depositor	$22,146 65
Amount of annual dividend	106,556 81
Rate per cent. annual dividend	4 per cent.
Amount of last dividend	$54,210 74
Date of last dividend	June 1, 1907.
Rate per cent. of last dividend	4 per cent.
Average rate of dividend for the last three years	4 per cent.
Amount of reserved profits at time of last dividend	$240,357 73

Amount loaned on mortgages in other States:—

Connecticut	$111,143 00
New York	7,000 00
Iowa	29,500 00
Minnesota	24,000 00
Kansas	22,400 00
South Dakota	4,400 00
Florida	600 00
	$199,043 00

STOCKS OWNED BY THE COMPANY.

	BANK.	*Cost to Bank.*
50 shares	American Exchange National, New York	$5,000 00
125 "	National Bank of Commerce, New York	12,500 00
19 "	First National, New York	1,900 00
92 "	Fourth National, New York	9,200 00
27 "	Merchants National, New York	1,350 00
200 "	National Bank of North America, New York	20,000 00
100 "	National Bank of Commerce, Providence	5,000 00
23 "	Mechanic National, Providence	1,150 00
21 "	United National, Providence	2,100 00
143 "	First National Hopkinton, Hope Valley	14,300 00
		$72,500 00

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RAILROAD.	*Cost to Bank.*
100 shares Great Northern preferred	$10,000 00
100 " Kansas City, St. Louis and Chicago (guaranteed)	10,000 00
200 " Manhattan Elevated	20,000 00
100 " New York, New Haven and Hartford	10,000 00
628 " Pennsylvania	31,400 00
100 " Third Avenue, New York	10,000 00
	$91,400 00
MANUFACTURING.	
300 shares Babcock and Wilcox Company	$30,000 00

BONDS OWNED BY THE COMPANY.

GOVERNMENT.	*Cost to Bank.*
Republic of Cuba 5s, 1944	$35,000 00
Imperial Japanese second 4½s, 1925 (par value $24,350)	22,000 00
Republic of Mexico gold 5s, 1915	24,250 00
	$81,250 00
STATE.	
Jalisco, Mexico, gold 6s, 1930	$10,000 00
Massachusetts 3½s, 1944	40,000 00
	$50,000 00
CITY.	
Cincinnati 6s, 1909	$10,000 00
Columbus, Texas, school, 6s, 1911	5,000 00
Daytona, Fla., 5s, 1929	17,500 00
Galveston, Texas, 5s, 1934	5,000 00
Vernon, Texas, 4s, 1910	9,000 00
	$46,500 00
COUNTY.	
Minnehaha, So. Dakota, school 7s, 1910	$1,000 00
Pittsylvania, Va., refunding 6s, 1916	8,000 00
	$9,000 00
RAILROAD.	
Auburn and Syracuse Electric first mortgage 5s, 1942	$35,000 00
Baltimore and Ohio first mortgage 4s, 1948	20,000 00
Berskhire Street first mortgage 5s, 1922	20,000 00
Birmingham Railway, Light and Power 4½s, 1954 (par value $50,000)	47,500 00
Brockton and Plymouth first mortgage 4½s, 1920	36,000 00

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	Cost to Bank.
Brooklyn Union Elevated first mortgage 5s, 1950	$20,000 00
Buffalo, New York and Erie first mortgage 7s, 1916	10,000 00
Burlington, Iowa, Railway and Light first mortgage 5s, 1917	5,000 00
Canada Southern first mortgage 5s, 1908	6,000 00
Chicago, Milwaukee and St. Paul first mortgage 6s, 1910	10,000 00
Chicago, Northwestern sinking fund 6s, 1929	10,000 00
Chicago and Rock Island and Pacific first and refunding mortgage 4s, 1934 (par value $25,000)	24,000 00
Chicago, Rock Island and Pacific first mortgage 6s, 1917	4,000 00
Chicago and West Michigan first mortgage 5s, 1921	25,000 00
Cicero and Proviso Street, Chicago, consol mortgage 5s, 1915	25,000 00
Cincinnati, Hamilton and Dayton general mortgage 5s, 1942	15,000 00
Cincinnati Northern first mortgage 4s, 1951	4,000 00
Colorado and Southern first mortgage 4s, 1929 (par value $17,000)	14,000 00
Danville, Ill., Street Railway and Light refunding mortgage 5s, 1925	10,000 00
Davenport and Rock Island first mortgage 6s, 1911	10,000 00
Denver City Tramway first mortgage 5s, 1919	8,000 00
Des Moines Street first mortgage 6s, 1918	16,000 00
Detroit United first consolidated mortgage 4½s, 1932 (par value $10,000	9,500 00
Erie Electric Motor Company first mortgage 5s, 1941	10,000 00
Evansville and Terre Haute first consolidated mortgage 6s, 1921	10,000 00
Galveston, Harrisburg, and San Antonio sinking fund 6s, 1910	15,000 00
Greenpoint and Lorimer Street, Brooklyn, first mortgage 6s, 1910	10,000 00
Grand Rapids first mortgage 5s, 1916	25,000 00
Gulf and Ship Island first and refunding mortgage 5s, 1952	25,000 00
Illinois Central first mortgage 3½s, 1951	10,000 00
Indiana first mortgage 5s, 1930	38,000 00
Indiana, Decatur and Western first mortgage 5s, 1935	25,000 00
Indiana, Illinois and Iowa first mortgage 4s, 1950	20,000 00
Iowa Central first mortgage 5s, 1938	1,000 00
Kansas City Elevated general mortgage 4s, 1922 (par value $31,000)	25,000 00
Louisville and Nashville general mortgage 6s, 1930	2,000 00
Louisville, New Albany and Chicago first mortgage 6s, 1911	10,000 00
Marietta, Columbus and Cleveland first mortgage 5s, 1940	10,000 00
Metropolitan Elevated first mortgage 6s, 1908	5,000 00
Metropolitan Street, Kansas City, consolidated mortgage 5s, 1910	10,000 00
Midland of New Jersey first mortgage 6s, 1910	18,000 00
Milwaukee Electric Railway and Light consolidated mortgage 5s, 1926	15,000 00
Missouri, Kansas and Texas first mortgage extension 5s, 1944	20,000 00
Missouri Pacific collateral trust notes 5s, 1908	25,000 00
Morris and Essex first mortgage 7s, 1915	5,000 00
Multnomah Street, Portland, Oregon, 6s, 1910	15,000 00
New York Central and Hudson River first mortgage 3½s, 1997	50,000 00

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	Cost to Bank.
New York, Lackawanna and Western Construction mortgage 5s, 1923	$20,000 00
New York, Chicago and St,. Louis 4s, 1937	5,000 00
Nodaway Valley first mortgage 7s, 1920	2,000 00
Norfolk and Western joint first mortgage 4s, 1941 (par value $25,000)	23,000 00
Northern Pacific, Great Northern C. B. Q. collateral joint mortgage 4s, 1921	25,000 00
Pennsylvania and Mahoning Valley first mortgage 5s, 1922	41,000 00
Pensacola and Atlantic 6s, 1921	5,000 00
Pittsburg, Cleveland and Toledo first mortgage 6s, 1922	5,000 00
Schenectady first mortgage 4½s, 1941	25,000 00
Seaboard and Roanoke 5s, 1926	20,000 00
St. Joseph and Grand Island first mortgage 4s, 1947	1,000 00
St. Paul and Sioux City 6s, 1919	20,000 00
Toledo, Peoria and Western first mortgage 4s, 1917 (par value $20,000)	16,500 00
Union Pacific first mortgage 4s, 1947	5,000 00
Utica and Mohawk Valley first mortgage 4½s, 1941	25,000 00
Wabash first mortgage 5s, 1939	18,000 00
West End Street, Boston, 4s, 1915	10,000 00
West Shore first mortgage 4s, 2361	2,000 00
Wilkes Barre and Wyoming Valley first mortgage 5s, 1921	10,000 00
	$1,061,500 00

MISCELLANEOUS.

American Telephone and Telegraph Company 5s, 1910	$50,000 00
Atlanta Gas Light Company first mortgage 5s, 1947	10,000 00
Celadon Terra Cotta Company first mortgage 6s, 1909 (par value $40,000)	30,000 00
Central Union Telephone Company first mortgage 5s, 1919	10,000 00
Commonwealth Power Company first mortgage 5s, 1924	25,000 00
Crystal Water Company first mortgage 4s, 1924 (par value $3,500)	3,000 00
Dayton Electric Light Company first mortgage 5s, 1921	17,000 00
Des Moines Edison Light Company 5s, 1931	27,000 00
Detroit Edison Electric Company first mortgage 5s, 1933	50,000 00
Dominion Power and Transmission Company, Ltd., 5s, 1932	24,000 00
Duluth Edison Electric Company first mortgage 5s, 1931	25,000 00
Equitable Gas and Electric Company, Utica, first mortgage 5s, 1942	27,000 00
Grand Rapids-Muskegon Power Company first mortgage 5s, 1931.	25,000 00
Hamilton Electric Light and Cataract Power Company 5s, 1929	10,000 00
Henderson Bridge Company 6s, 1931	3,000 00
Houston Lighting and Power Company first mortgage 5s, 1942	25,000 00
Hudson River Power Transmission Company 5s, 1928	25,000 00
Indianapolis Light and Power Company first mortgage 6s, 1922	28,000 00
Los Angeles Edison Electric Company first mortgage 5s, 1922	50,000 00
Minneapolis General Electric Company first mortgage 6s, 1908	10,000 00

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	Cost to Bank.
Missouri Edison Electric Company 5s, 1927	$10,000 00
Montreal Light, Heat and Power Company first mortgage 4½s, 1932.	25,000 00
Montreal Light, Heat and Power Company Lachine collateral 5s, 1933	25,000 00
New Orleans Edison Electric Company first mortgage 5s, 1929	17,000 00
Omaha Electric Light and Power Company first mortgage 5s, 1933	25,000 00
Omaha Water Company prior lien mortgage 5s, 1916	20,000 00
Peoples Gas Light and Coke Company, Chicago, refunding mortgage 5s, 1947	10,000 00
Port Huron Light and Power Company first mortgage 5s, 1921	15,000 00
Portland General Electric Company first mortgage 5s, 1935	56,000 00
Queens Borough Electric Light and Power Company first mortgage 5s, 1928	25,000 00
Smith Granite Company first mortgage 5s, 1921	30,000 00
Solvay Process Company and Semet-Solvay Company 5s, 1908	10,000 00
Springfield Light and Power Company first mortgage 6s, 1922	12,000 00
Tonawanda Lighting and Power Company first mortgage 6s, 1927.	11,000 00
United Electric Securities Company collateral trust 5s, 1935	35,000 00
Utica Electric Light and Power Company first mortgage 5s, 1950	30,000 00
Westinghouse Electric and Manufacturing Company convertible sinking fund 5s, 1931	25,000 00
	$855,000 00

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STATEMENT

OF

Domestic Building and Loan Association,

FOR THE

YEAR ENDING DECEMBER 31, 1906.

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OLD COLONY CO-OPERATIVE BANK.

PROVIDENCE.

Chartered May 22, 1895. Commenced business July 1, 1895.

Office No. 49 Westminster Street.

Condition at the close of business on the thirty-first day of December, 1906.

D. RUSSELL BROWN, *President.* GEO. T. BAKER, *Secretary.*

CAPITAL AND GUARANTY FUNDS.

ASSETS.		LIABILITIES.	
Loans on bond and mortgage (face value)	$833,705 00	Due shareholders on stock account	$409,124 23
Loans on other security	23,067 80	Accrued earnings due shareholders	3,102 57
Real estate foreclosure	5,047 75	Balance due on loans made	6,085 34
Cash on hand and in bank	16,088 94	Due on paid-up shares	316,186 87
Installments due and unpaid	7,394 33	Installments paid in advance	80 95
Insurance advanced	68 16	Surplus	2,657 96
		Sinking fund	147,815 18
		Suspense account	318 88
	$885,371 98		$885,371 98

RECEIPTS.		DISBURSEMENTS.	
(From all Sources.)		Loaned on mortgage	$202,214 66
Cash on hand January 1, 1906		Loaned on other securities	2,859 00
Guarantee Fund	$651 06	Shares withdrawn	205,872 71
Cash on hand January 1, 1906, Capital Fund	17,642 92	Borrowed money repaid	4,635 24
Subscriptions on shares, installment	174,633 23	Interest on stocks	17,880 50
Westminster Bank	20,230 56	Interest	8 77
"Paid-up stock"	49,000 00	Sundry accounts	826 43
Borrowed money	4,400 00	Real estate	591 26
Mortgages redeemed (in whole or in part)	106,421 75	Insurance adjustment	1,104 84
Premium and interest received	51,542 56	Expense to reserve fund	9,278 00
Fines received	265 41	Taxes advanced	143 86
Stock loans repaid	3,985 14	Insurance advanced	30 00
Sinking fund mortgage loans	45,660 33	Westminster Bank	20,000 00
Real estate	3,148 55	Cash on hand, Ind. Trust Co	16,088 94
Profit on insurance	134 55		
Interest	531 36		
Sundry accounts	1,423 84		
Insurance advanced	20 75		
Taxes advanced	143 86		
Interest income stock	593 50		
Insurance adjustment	1,104 84		
	$481,534 21		$481,534 21

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RESERVE (EXPENSE) FUND.

Receipts for the Year 1906		Disbursements for the Year 1906.	
Cash on hand January 1, 1906..	$174 61	Salaries.....	$7,144 99
Premiums and membership fees.	105 75	Commissions.....	768 32
Appraisal fees.....	510 00	Printing and stationery.....	136 75
Expense.....	9,278 00	Advertising.....	118 50
Interest (bank balance).....	49	Postage.....	83 00
		Appraisal expenses.....	467 50
		Sundry expenses.....	1,109 37
		Officers' travelling expenses.....	20 00
		Cash on hand Dec. 31, 1906....	220 42
	$10,068 85		$10,068 85

EARNINGS ACCOUNT FOR THE YEAR.

Dr.		Cr.	
Interest and premium.....	$51,128 32	Dividend profits.....	$35,182 61
Fines.....	132 70	Expenses.....	9,278 00
Interest (bank balance).....	753 15	Other credits.....	7,688 11
Insurance.....	134 55		
	$52,148 72		$52,148 72

Plan?—Serial.

How often is new series issued?—Monthly.

What is the par value of shares (matured)?—$100.

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TABLES OF STATE BANKS.

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TABLE NO. 1.—RESOURCES OF STATE BANKS.

NAME.	LOCATION.	Due from directors.	Debts due from stock-holders.	Debts due from others.	Specie in bank.	Bills from other banks, checks, and cash.
High Street	Providence	$29,100 00	$13,900 00	$515,185 63	$8,221 94	$152,772 39
New England Commercial	Newport	6,027 46	1,170 00	48,587 51	2,316 75	8,758 56
Westminster	Providence	53,080 00	19,000 00	959,053 50	6,351 14	73,733 02
Total		$88,207 46	$34,070 00	$1,522,826 64	$16,889 83	$235,263 97
Banks in Liquidation.						
State	Providence				$562 89	
Aggregate		$88,207 46	$34,070 00	$1,522,826 64	$17,452 72	$235,263 97

TABLE NO. 2.—LIABILITIES OF STATE BANKS.

NAME.	LOCATION.	Cash capital paid in.	Deposits on interest.
High Street	Providence	$120,000 00	$321,704 24
New England Commercial	Newport	75,000 00	
Westminster	Providence	200,000 00	556,973 90
Total		$395,000 00	$878,678 14
Banks in Liquidation.			
State	Providence	$77,225 00	
Aggregate		$472,225 00	$878,678 14

TABLE NO. 3.—SUMMARY OF OTHER ITEMS OF STATE BANKS.

NAME.	LOCATION.	Par value of shares.	LAST DIVIDEND.		
			Amount.	Date.	Rate per cent.
High Street	Providence	$50 00	$4,800 00	Feb. 4, 1907.	8 per cent.
New England Commercial	Newport	50 00	1,875 00	Jan. 2, 1907.	5 per cent.
Westminster	Providence	50 00	6,000 00	May 6, 1907.	6 per cent.
Total			$12,675 00		6.33+ per cent.

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TABLE No. 1.—RESOURCES OF STATE BANKS.—*Concluded.*

Deposits in other banks.	Other stock held by the bank.	Other stock or bonds owned by bank.	Real estate.	Other property.	Expense account.	Profit and loss.	Other resources.	Total resources.
$128,366 57	.....	.....	$45,000 00	$3,000 00	.....	.....	$5,000 00	$900,546 53
13,192 89	$20,220 00	$31,412 50	11,562 26	1,344 60	.....	.....	.....	144,592 53
62,823 28	57 50	22,455 00	.....	.....	$3,606 73	.....	.....	1,200,160 17
$204,382 74	$20,277 50	$53,867 50	$56,562 26	$4,344 60	$3,606 73	.....	$5,000 00	$2,245,299 23

Banks in Liquidation.

$78 96	.....	.....	.....	.....	.....	$76,876 37	.....	$77,518 22
$204,461 70	$20,277 50	$53,867 50	$56,562 26	$4,344 60	$3,606 73	$76,876 37	$5,000 00	$2,322,817 45

TABLE No. 2.—LIABILITIES OF STATE BANKS.—*Concluded.*

Deposits not on interest.	Debts due to other banks.	Unpaid dividends.	Profit on hand.	Total liabilities.
$304,058 64	$50,000 00	.....	$104,783 65	$900,546 53
40,853 81	20,000 00	$281 25	8,457 47	144,592 53
242,768 44	100,000 00	1,329 15	99,088 68	1,200,160 17
$587,680 89	$170,000 00	$1,610 40	$212,329 80	$2,245,299 23

Banks in Liquidation.

$293 22	.....	.....	.....	$77,518 22
$587,974 11	$170,000 00	$1,610 40	$212,329 80	$2,322,817 45

TABLE No. 3.—SUMMARY OF OTHER ITEMS OF STATE BANKS.—*Concluded.*

Reserved profits at time of last dividend.	Debts due and unpaid.	Loaned on pledges of stock in bank.	Stocks and bonds held as collateral security for loans.	Loaned thereon.	Largest amount of indebtedness of any one person or firm.
$95,970 93	$4,507 28	$33,800 00	$35,780 00	$37,500 00	$40,000 00
6,512 46	4,080 61	5,122 46	1,150 00	325 00	12,405 10
84,056 02	27,337 90	85,114 00	126,236 00	85,114 00	37,795 13
$186,539 41	$35,925 79	$124,036 46	$163,166 00	$122,939 00	.....

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TABLES OF SAVINGS BANKS.

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TABLE NO. 4.—RESOURCES OF SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.

Number.	NAME.	LOCATION.	Cash on hand and in banks.	Call loans to banks and bankers.	Call loans to individuals and corporations.	MORTGAGES ON REAL ESTATE.	
						Rhode Island.	Other States.
1	Ashaway Savings Bank	Ashaway	$926 96			$27,996 00	$3,437 50
2	Centreville Savings Bank	Warwick				322,500 00	
3	Citizens Savings Bank	Providence	769,232 41	$317,000 00		4,000,080 00	
4	Island Savings Bank	Newport	77,415 50		$8,300 00	809,693 70	18,000 00
5	Kingston Savings Bank	Kingston	14,021 18			102,807 67	
6	Mechanics Savings Bank	Woonsocket	42,024 84		4,000 00	751,403 31	4,150 00
7	Pawtucket Inst. for Savings	Pawtucket	175,762 87			1,532,881 00	36,430 00
8	Peoples Savings Bank	Providence	228,848 09			620,615 60	489,000 00
9	Peoples Savings Bank	Woonsocket	34,667 16			792,476 83	
10	Producers Savings Bank	Woonsocket	78 026 20			1,038,110 91	6,000 00
11	Prov. County Savings Bank	Pawtucket	33,928 68			585,645 01	9,000 00
12	Prov. Inst. for Savings	Providence	669,808 21			1,683,792 00	1,776,712 83
13	Savings Bank of Newport	Newport	112,995 11			3,762,961 06	
14	Smithfield Savings Bank	Greenville	12,534 42			414,566 00	
15	Wakefield Inst. for Savings	Wakefield	19,343 45		31,200 00	332,667 50	
16	Wickford Savings Bank	Wickford	32,021 74			214,701 00	
17	Woonsocket Inst. for Savings	Woonsocket	73,097 11			1,942,284 30	33,000 00
	Total		$2,374 653 93	$317,000 00	$43,500 00	$18,935,181 89	$2,375,730 33

Banks in Liquidation.

1	Franklin Savings Bank	Pawtucket	$4,519 29				
2	Hopkinton	Hope Valley	4,333 24				
3	Jackson Inst. for Savings	Providence	964 40				
4	Mechanics Savings Bank	Providence	583,220 35		$9,600 00	$26,480 95	$39,403 15
5	Mechanics Savings Bank	Westerly	52,823 43		275 00	22,172 42	29,108 40
6	Merchants Savings Bank	Providence	44,171 05				
7	Niantic Savings Bank	Westerly	3,559 78				
8	Phenix Savings Bank	Phenix	1,779 00				
9	Rhode Island Inst. for Savings	Providence	1,570 06				
10	Warren Inst. for Savings	Warren	1,675 28				
11	Warwick Inst. for Savings	Warwick	5,275 16				
	Total		$703,891 04		$9,875 00	$48,653 37	$68,511 55
	Aggregate		$3,078,544 97	$317,000 00	$53,375 00	$18,983,835 26	$2,444,241 88

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TABLE NO. 4.—RESOURCES OF SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.—*Continued.*

Number.	Stocks.				Bonds.		
	Bank.	Railroad.	Manufacturing.	Miscellaneous.	Government.	State.	City, Town, and Village.
1	$8,200 00						
2	7,350 00			$65,622 00			
3	28,400 00						$333,000 00
4	18,680 00			36,600 00		10,000 00	50,200 00
5	9,240 00	13,070 00		20,780 00			
6	18,635 00	4,700 00				6,000 00	71,000 00
7		148,524 20	$18,500 00	108,325 00	$33,860 59	300,000 00	319,000 00
8	153,000 00	340,737 50		29,750 00			642,000 00
9	2,740 17	50,920 25		17,875 00	5,000 00	10,000 00	
10	20,300 00	4,625 00				19,387 50	37,000 00
11							
12	230 300 00	701,800 00		40,000 00	1,000,000 00	275,000 00	1,512,000 00
13	120,440 00				200,000 00	102,200 00	2,580,665 00
14	47,693 00	19,875 00					
15	23,635 00	98,028 75		74,343 00			
16	9,650 00			1,250 00			
17	19,000 00	60,000 00		7,810 00	21,500 00	90,000 00	747,500 00
	$717,263 17	$1,442,280 70	$18,500 00	$402,355 00	$1,260 360 59	$812,587 50	$6,292,365 00

Banks in Liquidation.

1							
2							
3							
4		$19,709 00					
5				$78,330 00			
6							
7							
8							
9							
10							
11							
...		$19,709 00		$78,330 00			
...	$717,263 17	$1,461,989 70	$18,500 00	$480,685 00	$1,260,360 59	$812,587 50	$6,292,365 00

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TABLE NO. 4.—RESOURCES OF SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.—*Continued.*

Number.	NAME.	LOCATION.	BONDS.—*Concluded.*				City, Town and Dist.	Notes and Warrants
			County.	School District.	Railroad.	Miscellaneous.		
1	Ashaway Savings Bank	Ashaway			$6,250 00			
2	Centreville Savings Bank	Warwick			33,375 00	$14,850 00		
3	Citizens Savings Bank	Providence			1,385,000 00	1,037,000 00		
4	Island Savings Bank	Newport		$300 00	55,000 00	19,585 00		
5	Kingston Savings Bank	Kingston			74,755 00	75,240 00		
6	Mechanics Savings Bank	Woonsocket	$65,400 00	35,000 00	29,125 00	20,031 65		
7	Pawtucket Inst. for Savings	Pawtucket			2,291,785 00	459,312 50		
8	Peoples Savings Bank	Providence			1,472,481 25	837,336 25		
9	Peoples Savings Bank	Woonsocket	9,000 00		761,600 00	334,260 00		
10	Producers Savings Bank	Woonsocket	5,000 00	20,000 00	487,749 00	227,475 00		
11	Prov. County Savings Bank	Pawtucket			145,000 00	33,000 00		
12	Providence Inst. for Savings	Providence	39,000 00		6,979,625 00	875,000 00		
13	Savings Bank of Newport	Newport			846,000 00			
14	Smithfield Savings Bank	Greenville			9,200 00	26,850 00		
15	Wakefield Inst. for Savings	Wakefield			69,348 75	108,273 18		
16	Wickford Savings Bank	Wickford			53,225 00	58,900 00		
17	Woonsocket Inst. for Savings	Woonsocket	164,000 00	190,925 00	3,100,000 00	751,000 00		
	Total		$282,400 00	$246,225 00	$17,799,519 00	$4,938,113 58		

Banks in Liquidation.

1	Franklin Savings Bank	Pawtucket						
2	Hopkinton Savings Bank	Hope Valley						
3	Jackson Inst. for Savings	Providence						
4	Mechanics Savings Bank	Providence				$31,250 00		
5	Mechanics Savings Bank	Westerly			$15,000 00			
6	Merchants Savings Bank	Providence						
7	Niantic Savings Bank	Westerly						
8	Phenix Savings Bank	Phenix						
9	Rhode Island Inst. for Savings	Providence						
10	Warren Inst. for Savings	Warren						
11	Warwick Inst. for Savings	Warwick						
	Total				$15,000 00	$31,250 00		
	Aggregate		$282,400 00	$246,225 00	$17,814,519 00	$4,969,363 58		

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TABLE NO. 4.—RESOURCES OF SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.—*Concluded.*

Number.	Loans on Personal Security.	Loans Secured by Pledge of Bonds, Stocks, or other Collateral.	Banking House.	Other Real Estate.	Furniture and Fixtures.	Profit ond Loss.	Total Resources.
1	.....	.....	.....	.....	.....	.....	$46,810 46
2	$79,455 00	.....	.....	.....	.....	$97 26	523,249 26
3	.....	.....	.....	$28,092 61	.....	.....	9,958,805 02
4	.....	$63,873 93	.....	9,517 36	.....	24,329 72	1,201,495 21
5	1,901 01	5,900 00	.....	12,000 00	$2,000 00	.....	331,714 86
6	91,340 37	26,500 00	.....	.....	.....	.....	1,354,010 17
7	.....	150,718 80	$117,500 00	119,718 00	.....	.....	5,820,317 96
8	1,113,000 00	387,628 12	15,000 00	153,819 87	.....	.....	6,483,216 68
9	32,463 00	12,620 00	.....	6,332 48	4,000 00	.....	2,123,954 89
10	7,640 00	94,086 61	.....	1 200 00	4,000 00	.....	2,095,600 22
11	7,125 72	975 00	62,000 00	151,900 27	2,700 00	.....	1,031,274 68
12	4,821,520 77	1,990,125 00	50,000 00	50,946 58	.....	.....	22,695,630 39
13	2,000 00	66,000 00	30,500 00	119,381 35	.....	.....	7,943.142 52
14	3,000 00	30,000 00	.....	35,400 00	.....	300 00	599,418 42
15	38,143 94	17,490 00	17,000 00	67,433 90	.....	.....	896,907 47
16	7,329 31	6,625 00	.....	6,612 93	.....	.....	390,314 98
17	95,142 12	105,539 00	.....	.....	.....	.....	7,400,797 53
...	$6,300,061 24	$2,958,081 46	$292,000 00	$762,355 35	$12,700 00	$24,726 98	$70,896,660 72

Banks in Liquidation.

1	.....	.....	.....	.....	.....	.....	$4,519 29
2	.....	.....	.....	.....	.....	$4,825 00	9.158 24
3	.....	.....	.....	.....	.....	145,715 40	146,679 80
4	.....	.....	.....	$81,555 06	.....	.....	791,218 51
5	$10,000 00	$82,053 33	.....	92,528 88	$400 08	64,370 70	397,062 24
6	.....	.....	.....	.....	.....	.....	44,171 05
7	.....	.....	.....	.....	.....	.....	3,559 78
8	.....	.....	.....	.....	.....	63,301 60	65,080 60
9	.....	.....	.....	.....	.....	.....	1,570 06
10	.....	.....	.....	.....	.....	.....	1 675 28
11	.....	.....	.....	.....	.....	.....	5,275 16
...	$10,000 00	$32,053 33	.....	$174,083 94	$400 08	$278,212 70	$1,469,970 01
...	$6,310,061 24	$2,990,134 79	$292,000 00	$936 439 29	$13,100 08	$302,939 68	$72,366,630 73

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TABLE NO. 5.—LIABILITIES OF SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.

Number.	NAME.	LOCATION.	Amount of Deposits.
1	Ashaway Savings Bank	Ashaway	$42,637 22
2	Centreville Savings Bank	Warwick	474,365 [illegible]
3	Citizens Savings Bank	Providence	9,380 02[illegible] 47
4	Island Savings Bank	Newport	1,155,682 [illegible]
5	Kingston Savings Bank	Kingston	301,673 [illegible]
6	Mechanics Savings Bank	Woonsocket	1,288,390 86
7	Pawtucket Institution for Savings	Pawtucket	5,220,339 [illegible]
8	Peoples Savings Bank	Providence	6,122,341 [illegible]
9	Peoples Savings Bank	Woonsocket	2,012,389 [illegible]
10	Producers Savings Bank	Woonsocket	2,008,965 [illegible]
11	Providence County Savings Bank	Pawtucket	964,338 [illegible]
12	Providence Institution for Savings	Providence	21,191,867 [illegible]
13	Savings Bank of Newport	Newport	7,106,271 17
14	Smithfield Savings Bank	Greenville	560,538 42
15	Wakefield Institution for Savings	Wakefield	856,857 40
16	Wickford Savings Bank	Wickford	344,062 26
17	Woonsocket Institution for Savings	Woonsocket	6,683,017 [illegible]
	Total		$65,713,782 38

Banks in Liquidation.

1	Franklin Savings Bank	Pawtucket	$4,519 29
2	Hopkinton Savings Bank	Hope Valley	9,158 24
3	Jackson Institution for Savings	Providence	146,679 80
4	Mechanics Savings Bank	Providence	3,651 57
5	Mechanics Savings Bank	Westerly	396,924 13
6	Merchants Savings Bank	Providence	42,939 77
7	Niantic Savings Bank	Westerly	3,559 78
8	Phenix Savings Bank	Phenix	63,301 60
9	Rhode Island Institution for Savings	Providence	1,570 06
10	Warren Institution for Savings	Warren	1,390 27
11	Warwick Institution for Savings	Warwick	3,696 75
	Total		$677,391 26
	Aggregate		$66,391,173 64

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TABLE No. 5.—LIABILITIES OF SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.—*Concluded.*

Number.	Amount of Profits on Hand.	Profit and Loss.	Other Liabilities.	Total Liabilities.
1	$4,173 24	.....	.....	$46,810 46
2	42,453 96	$3,209 73	$3,220 47	523,249 26
3	578,781 55	.....	.....	9,958,805 02
4	20,000 00	25,812 28	.....	1,201,495 21
5	30,041 63	.....	.....	331,714 86
6	65,619 31	.....	.....	1,354,010 17
7	500,682 32	.....	99,296 34	5,820,317 96
8	355,870 00	.....	5,005 00	6,483,216 68
9	70,000 00	17,889 98	23,675 39	2,123,954 89
10	86,614 30	.....	.....	2,095,600 22
11	.....	66,387 41	548 50	1,031,274 68
12	1,503,763 06	.....	.....	22,695,630 39
13	123,209 49	713,661 86	.....	7,943,142 52
14	3,228 62	35,651 38	.....	599,418 42
15	40,050 07	.....	.....	896,907 47
16	10,809 90	35,442 82	.....	390,314 98
17	671,040 60	.....	46,739 13	7,400,797 53
	$4,106,338 05	$898,055 46	$178,484 83	$70,896,660 72

Banks in Liquidation.

1	.....	.....	.....	$4,519 29
2	.....	.....	.....	9,158 24
3	.....	.....	.....	146,679 80
4	$381,116 43	.....	$406,450 51	791,218 51
5	138 11	.....	.....	397,062 24
6	.....	$1,231 28	.....	44,171 05
7	.....	.....	.....	3,559 78
8	75 05	.....	1,703 95	65,080 60
9	.....	.....	.....	1,570 06
10	.....	.....	285 01	1,675 28
11	.....	.....	1,578 41	5,275 16
	$381,329 59	$1,231 28	$410,017 88	$1,469,970 01
	$4,487,667 64	$899,286 74	$588,502 71	$72,366,630 73

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TABLE NO. 6.

Showing Amount of Deposits, Whole Number of Depositors, Largest Amount Due to any one Depositor, Amount, Date, and Rate Per Cent. of Last Dividend, Amount of Reserved Profits at time of Last Dividend, and Average Rate of Dividend for the Last Three Years.

Number.	NAME.	LOCATION.	Amount of Deposits.	Whole Number of Depositors.	Number Depositing $500 and under $1,000.	Number Depositing $1,000 and upward.
1	Ashaway Savings Bank	Ashaway	$42,637 22	258	16	8
2	Centreville Savings Bank	Warwick	474,365 10	1,464	135	106
3	Citizens Savings Bank	Providence	9,380,023 47	12,537	1,785	3,097
4	Island Savings Bank	Newport	1,155,682 93	1,706	222	285
5	Kingston Savings Bank	Kingston	301,673 23	606	84	89
6	Mechanics Savings Bank	Woonsocket	1,288,390 86	1,866	255	464
7	Pawtucket Inst. for Savings	Pawtucket	5,220,339 30	10,994	1,384	1,596
8	Peoples Savings Bank	Providence	6,122,341 68	10,414	1,440	1,981
9	Peoples Savings Bank	Woonsocket	2,012,389 52	4,913	561	587
10	Producers Savings Bank	Woonsocket	2,008,985 92	3,140	516	738
11	Providence County Sav. Bank	Pawtucket	964,338 77	3,512	271	236
12	Providence Inst. for Savings	Providence	21,191,867 33	41,644	6,638	7,938
13	Savings Bank of Newport	Newport	7,106,271 17	8,647	1,025	1,555
14	Smithfield Savings Bank	Greenville	560,538 42	898	84	137
15	Wakefield Inst. for Savings	Wakefield	856,857 40	2,230	204	238
16	Wickford Savings Bank	Wickford	344,062 26	1,015	88	92
17	Woonsocket Inst. for Savings	Woonsocket	6,683,017 80	11,536	2,029	2,237
	Total		$65,713,782 38	117,380	16 737	21,684

Banks in Liquidation.

1	Franklin Savings Bank	Pawtucket	$4,519 29	39	1	1
2	Hopkinton Savings Bank	Hope Valley	9,158 24	210	.....	.....
3	Jackson Inst. for Savings	Providence	146,679 80	683	66	37
4	Mechanics Savings Bank	Providence	3,651 57	462	1	.....
5	Mechanics Savings Bank	Westerly	396,924 13	1,929	128	67
6	Merchants Savings Bank	Providence	42,939 77	.....	.....	.....
7	Niantic Savings Bank	Westerly	3,559 78	71	1	1
8	Phenix Savings Bank	Phenix	63,301 60	1,284	5	2
9	Rhode Island Inst. for Sav	Providence	1,570 06	.....	.....	.....
10	Warren Inst. for Savings	Warren	1,390 27	20	.....	.....
11	Warwick Inst. for Savings	Warwick	3,696 75	241	.....	.....
	Total		$677,391 26	4,939	202	108
	Aggregate		$66,391,173 64	122,319	16,939	21,792

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TABLE NO. 6.—*Concluded.*

Number.	Largest Amount Due any one Depositor.	Last Dividend. Amount.	Date.	Rate.	Amount of Reserved Profits at Time of Last Dividend.	Average Rate of Dividend for Past Three Years.
1	$3,394 22	$866 22	Jan. 1, 1907	4 per cent.	$3,226 45	3.33 per cent.
2	16,365 90	8,756 09	May 25, 1907	4 "	42,453 96	4 "
3	50,000 00	178,284 07	Jan. 16, 1907	4 "	361,442 37	4 "
4	71,591 55	22,550 12	Jan. 15, 1907	4 "	42,581 88	4 "
5	9,091 43	5,883 91	Jan. 1, 1907	4 "	21,201 30	4 "
6	15,569 25	24,485 38	June 15, 1907	4 "	63,674 68	4 "
7	26,000 00	96,245 19	Jan. 15, 1907	4 "	492,443 15	4 "
8	15,417 30	117,005 97	Jan. 16, 1907	4 "	266,678 11	4 "
9	25,217 82	38,553 55	April 16, 1907	4 "	81,027 64	4 "
10	8,575 94	37,603 48	Jan. 18, 1907	4 "	52,472 55	4 "
11	15,006 94	17,465 12	Jan. 21, 1907	4 "	.....	4 "
12	10,937 27	386,422 52	Jan. 16, 1907	4 "	1,163,359 44	3.83 "
13	169,148 21	137,008 42	Jan. 18, 1907	4 "	713,661 86	3.83 "
14	45,141 08	11,043 01	May 1, 1907	4 "	35,651 38	4 "
15	18,477 62	30,735 97	Oct. 3, 1906	4 "	22,346 20	4 "
16	8,210 93	6,466 35	Jan. 2, 1907	4 "	31,851 76	4 "
17	13,000 00	126,965 46	May 1, 1907	4 "	666,202 09	4 "
	.....	$1,246,340 83	.....	*4 per cent.	$4,060,274 82	*3.94 per cent.

*Average.

Banks in Liquidation.

1	$3,004 04	$161,578 89	Dec. 4, 1901	9 per cent.	.....	.....
2	222 27	17,142 38	Oct. 8, 1906	15.25 "	.....	.....
3	7,580 07	36,149 91	Dec. 5, 1892	10 "	.....	.....
4	522 60	782,881 81	Dec. 1, 1906	10 "	.....	.....
5	5,613 85	98,268 92	Dec. 11, 1905	10 "	.....	.....
6	.....	*79,937 99	June 14, 1907	6.63 "	.....	.....
7	1,233 63	*1,812,343 95	May 1, 1906	107.25 "	.....	.....
8	1,551 06	*31,288 41	July 26, 1904	7.63 "	.....	.....
9	.....	.....	*Nov. 8, 1899	10.50 "	.....	.....
10	297 75	1,276,984 29	Feb. 1, 1906	107.243 "	.....	.....
11	304 00	*19,401 85	July 10, 1901	1.88 "	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....

*Final

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TABLE NO. 7.

A SUMMARY OF THE CONDITION OF THE SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS ON JUNE 29, 1907.

Resources.

Cash on hand, Due from banks, bankers, and trust companies	$3,078,544 97
Call loans to banks and bankers	317,000 00
Call loans to individuals and corporations	53,375 00
Mortgages on real estate	21,428,077 14
Stocks	2,678,437 87
Bonds	31,677,820 67
Loans on personal security	6,310,061 24
Loans secured by pledge of bonds, stocks, or other collaterals	2,990,134 79
Banking house	292,000 00
Other real estate	936,439 29
Furniture and fixtures	13,100 08
Profit and loss	302,939 68
City, town, and district notes and warrants	2,288,700 00
Total resources	$72,366,630 73

Liabilities.

Amount of deposits	$66,391,173 64
Amount of profits on hand	4,487,667 64
Profit and loss	899,286 74
Other liabilities	588,502 71
Total liabilities	$72,366,630 73

Miscellaneous.

Number of savings banks and institutions for savings	28
Amount of deposits	$66,391,173 64
Whole number of depositors	122,319
Number depositing $500 and under $1,000	16,939
Number depositing $1,000 and upwards	21,792
Largest amount due to any one depositor	169,148 21
Average rate per cent. of annual dividend*	4 per cent.
Average rate per cent. for last three years*	3.94 per cent.
Amount of reserved profits†	$4,060,274 82
Increase of deposits from previous year	3,065,265 66
Decrease of depositors	889
Increase of those depositing $500 and less than $1,000	898
Increase of those depositing $1,000 and upwards	1,354

*Exclusive of dividends paid in liquidation. †Exclusive of banks in liquidation.

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TABLE NO. 8.

Showing the Number, Condition, and Progress of all the Savings Banks and Institutions for Savings of Rhode Island in each year from 1853 to 1907, inclusive.

YEARS.	No. of savings banks.	No. of Depositors.	Amount of deposits.	Increase or decrease in amount of deposits over previous year.	Average to each depositor.	Average to each person in the State.	Population (about).
1853	12	16,989	$3,308,769 11	.....	$194 75	$22 44	147,525
1854	14	20,338	4,104,091 95	Inc. $705,382 84	.....	.....	.....
1855	15	23,229	4,834,312 03	730,220 08	.....	.....	.....
1856	18	27,002	5,797,857 14	963,545 11	.....	.....	.....
1857	18	27,259	6,079,053 33	281,196 19	.....	.....	.....
1858	20	27,643	6,349,621 75	270,568 42	.....	.....	.....
1859	21	31,833	7,765,771 43	1,416,149 68	.....	.....	.....
1860	21	35,405	9,163,760 41	1,397,988 98	258 82	52 47	174,620
1861	22	34,807	9,282,879 74	119,119 33	.....	.....	.....
1862	21	37,774	9,560,441 59	277,561 85	.....	.....	.....
1863	21	40,827	11,128,713 00	1,568,271 41	.....	.....	.....
1864	23	44,752	12,815,097 64	1,686,384 64	.....	.....	.....
1865	23	45,504	13,533,062 11	717,964 47	297 40	73 16	184,965
1866	25	52,859	17,751,713 03	4,218,650 92	.....	.....	.....
1867	25	59,071	21,413,647 14	3,661,934 11	.....	.....	.....
1868	25	63,501	24,408,635 95	2,994,988 81	.....	.....	.....
1869	25	67,238	27,067,072 18	2,658,436 23	.....	.....	.....
1870	26	72,891	30,708,501 38	3,641,429 20	421 29	141 79	217,353
1871	33	79,676	36,289,703 11	5,581,201 73	.....	.....	.....
1872	36	88,664	42,583,538 66	6,293,835 55	.....	.....	.....
1873	37	93,124	46,617,183 03	4,033,644 37	.....	.....	.....
1874	37	98,359	48,771,501 86	2,154,318 83	.....	.....	.....
1875	38	101,635	51,311,330 62	2,539,828 76	504 86	198 69	258,239
1876	35	99,865	50,511,979 41	Dec. 799,351 21	.....	.....	.....
1877	39	99,646	49,567,997 33	943,982 08	.....	.....	.....
1878	39	93,053	44,266,882 30	5,301,115 03	.....	.....	.....
1879	39	93,193	43,095,533 91	1,171,348 39	.....	.....	.....
1880	39	97,682	44,755,625 59	Inc. 1,660,091 68	458 17	161 48	276,531
1881	39	102,991	46,771,723 43	2,016,097 84	.....	.....	.....
1882	38	112,472	48,320,671 80	1,548,948 37	.....	.....	.....
1883	38	114,762	50,127,806 08	1,807,134 28	.....	.....	.....
1884	38	115,752	51,079,160 66	951,254 58	.....	.....	.....
1885	38	116,381	51,816,390 42	737,229 76	445 24	170 28	304,284
1886	37	119,159	53,284,821 11	1,468,430 69	.....	.....	.....
1887	37	120,144	55,363,283 63	2,078,462 52	.....	.....	.....
1888	38	123,102	57,699,884 94	2,336,601 31	.....	.....	.....
1889	38	127,898	60,479,707 65	2,779,822 71	.....	.....	.....
1890	38	131,852	63,719,491 57	3,239,783 92	483 99	184 42	345,506
1891	38	136,648	66,276,157 44	2,556,665 87	.....	.....	.....
1892	38	142,492	69,906,992 57	3,630,837 13	.....	.....	.....
1893	35	130,610	69,053,724 17	Dec. 853,268 40	.....	.....	.....
1894	35	131,622	67,444,117 14	1,609,607 03	.....	.....	.....
1895	35	135,252	68,732,903 53	Inc. 1,288,786 39	508 19	179 43	384,758
1896	35	136,148	68,683,697 90	Dec. 49,205 63	.....	.....	.....
1897	35	138,301	69,434,455 38	Inc. 750,757 58	.....	.....	.....
1898	35	140,815	70,589,065 09	1,154,609 61	.....	.....	.....
1899	35	146,321	73,186,624 01	2,597,558 92	.....	.....	.....
1900	35	148,695	74,846,759 30	1,660,135 29	503 36	174 65	428,556
1901	34	140,169	74,390,794 86	Dec. 455,964 44	.....	.....	.....
1902	34	149,464	73,528,508 43	862,286 43	.....	.....	.....
1903	32	150,342	74,534,627 61	Inc. 1,006,119 18	.....	.....	.....
1904	31	132,556	64,841,317 79	Dec. 9,693,309 82	.....	.....	.....
1905	31	123,688	61,105,145 80	3,736,171 99	494 02	.....	.....
1906	29	123,208	63,325,907 98	Inc. 2,220,762 18	513 98	131 91	480,082
1907	28	122,319	66,391,173 64	Inc. 3,065,265 66	542 77	138 29	.....

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TABLE NO. 9.

SHOWING THE AMOUNT INVESTED IN MORTGAGE LOANS IN OTHER STATES BY THE SEVERAL SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.

Name of State.	*Amount Loaned.*
Colorado	$80,000 00
Connecticut	51,033 50
Florida	61 00
Illinois	634,950 00
Iowa	167,033 15
Kansas	199,252 90
Massachusetts	56,480 00
Minnesota	779,012 83
Nebraska	271,720 00
New Jersey	4,836 00
New York	32,500 00
Ohio	1,000 00
South Dakota	12,000 00
Tennessee	154,362 50
Total	$2,444,241 88

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TABLE NO. 10.

GOLD AND SILVER COIN, CERTIFICATES, ETC., HELD BY SAVINGS BANKS AND INSTITUTIONS FOR SAVINGS.

NAME.	LOCATION.	Amount of Gold Coin.	Amount of Gold Certificates.	Amount of Silver Coin.	United States Treasury and National Bank Notes.
Pawtucket Institution for Savings	Pawtucket	215 00	$2,620 00	$385 00	$12,228 00
Peoples Savings Bank	Providence	435 00	820 00	114 35	3,075 00
Peoples Savings Bank	Woonsocket	230 00	1,000 00	634 06	2,100 00
Producers Savings Bank	Woonsocket	.....	.....	6 94	642 00
Providence Institution for Savings	Providence		41,410 00	365 80	145,593 00
Savings Bank of Newport	Newport	3,092 50	4,000 00	87 70	11,569 00
Smithfield Savings Bank	Greenville	.....	.....	31 05	.....
Wickford Savings Bank	Wickford	43 00	60 00	210 00	613 00
Total	.....	$4,015 50	$49,910 00	$1,834 90	$175,820 00

NOTE.—Banks which do not appear in the above table report "no cash on hand," as deposits are made daily in national banks or trust companies.

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TABLES OF TRUST COMPANIES.

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TABLE NO. 11.—RESOURCES OF TRUST COMPANIES.

NAME.	LOCATION.	Cash on hand.	Due from United States Treasurer.	Due from Banks Bankers, and Trust Companies.	Call Loans to Banks and Bankers.
Central	Providence	$12,085 21			
Industrial	Providence	1,111,371 95	$42,500 00	$7,010,985 64	$180,000 00
Italo-American Mutual	Providence	1,745 97		4,149 33	
Kingston	Kingston	5,988 13		9,603 42	
New England	Providence	21,951 96		12,226 66	
Newport	Newport	52,831 94	8,000 00	81,584 27	
Pawtucket	Pawtucket			1,212 11	
Phenix	Phenix	9,791 94		90,011 27	
Producers	Woonsocket			569 23	
Providence	Providence				
Rhode Island Hospital	Providence	1,337,229 57	43,000 00	2,992,905 04	278,530 00
Slater	Pawtucket	246,890 45	7,000 00	471,312 11	
Union	Providence	797,650 43	63,500 00	3,156,302 81	415,041 28
Wakefield	Wakefield	38,006 18		38,749 82	
Washington	Westerly	57,484 12		123,180 27	
Total		$3,693,027 85	$164,000 00	$13,992,791 98	$873,571 28

Trust Companies in Liquidation.

Manufacturers	Providence	$5,566 58			
Mercantile	Providence	3,410 03		$4,000 00	
R. I. Mortgage and Trust	Providence	2,054 99			
Total		$11,031 60		$4,000 00	
Aggregate		$3,704,059 45	$164,000 00	$13,996,791 98	$873,571 28

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TABLE NO. 11.—RESOURCES OF TRUST COMPANIES.—*Continued.*

Call Loans to Individuals and Corporations.	Mortgages on Real Estate.		Stocks.			
	Rhode Island.	Other States.	Bank.	Railroad.	Manufacturing.	Miscellaneous.
.....	$135,432 76	.....	.....	.....	.....	$25,750 00
$6,200,203 17	3,304,850 24	$254,184 00	$2,238,360 69	$5,051,377 90	.....	2,368,337 25
.....	19,120 00	.....	1,033 50	.....	.....	.....
.....	7,000 00	.....	.....	3,365 63	.....	5,260 00
.....	.....	.....	264,600 00	.....	.....	.....
.....	111,705 00	.....	32,322 50	62,500 00	.....	44,529 86
.....	.....	.....	.....	.....	.....	.....
.....	131,069 00	.....	.....	.....	.....	3,500 00
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
1,687,764 34	1,197,350 00	2,011,280 85	1,291,063 00	1,229,289 58	10,500 00	179,500 00
1,025,307 52	618,519 01	2,350 00	.....	300,988 25	609,635 74	12,660 50
4,915,148 83	518,975 50	.....	2,510,882 00	724,800 00	80,900 00	1,045,375 00
10,000 00	35,300 00	.....	2,000 00	68,475 00	.....	18,051 50
.....	396,294 41	199,043 00	72,500 00	91,400 00	30,000 00	.....
$13,838,423 86	$6,475,615 92	$2,466,857 85	$6,412,761 69	$8,132,196 36	$731,035 74	$3,702,964 11

Trust Companies in Liquidation.

.....	.....	.....	.....	$12,500 00	$9,080 00	$12,500 00
.....	.....	.....	$200 00	.....	.....	.....
.....	.....	$1,575 00	.....	.....	.....	1,125 50
.....	.....	$1,575 00	$200 00	$12,500 00	$9,080 00	$13,625 50
$13,838,423 86	$6,475,615 92	$2,468,432 85	$6,412,961 69	$8,144,696 36	$740,115 74	$3,716,589 61

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TABLE NO. 11.—RESOURCES OF TRUST COMPANIES.—*Continued.*

NAME.	LOCATION.	BONDS.				
		Government.	State.	County, City Town and District.	Railroad.	Miscellaneous.
Central	Providence					
Industrial	Providence	$80,281 50	$127,996 00	$146,763 00	$5,687,788 56	$2,327,121 83
Italo-American Mutual	Providence					
Kingston	Kingston				22,505 00	59,990 00
New England	Providence					
Newport	Newport			60,000 00	259,402 25	106,130 34
Pawtucket	Pawtucket					
Phenix	Phenix				10,175 00	
Producers	Woonsocket			1,000 00		3,900 00
Providence	Providence					
Rhode Island Hospital	Providence	1,071,300 00	1,000,000 00	433,556 29	4,563,357 34	1,914,031 25
Slater	Pawtucket		100,000 00	108,000 00	1,333,856 33	420,456 25
Union	Providence		5,000 00	94,750 00	355,400 00	217,400 00
Wakefield	Wakefield			2,000 00	34,140 00	24,500 00
Washington	Westerly	81,250 00	50,000 00	55,500 00	1,061,500 00	855,000 00
Total		$1,232,831 50	$1,282,996 00	$901,569 29	$13,328,124 48	$5,928,529 67

Trust Companies in Liquidation.

Manufacturers	Providence					$3,125 00
Mercantile	Providence					
R. I. Mortgage and Trust	Providence			$2,000 00		
Total				$2,000 00		$3,125 00
Aggregate		$1,232,831 50	$1,282,996 00	$903,569 29	$13,328,124 48	$5,931,654 67

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TABLE NO. 11.—RESOURCES OF TRUST COMPANIES.—*Concluded.*

Loaned on Personal Security.	Loans Secured by Pledge of Bonds, Stocks, or other Collateral.	Banking House.	Other Real Estate.	Furniture and Fixtures.	Other Resources.	Total Resources.
$21,920 66	$35,971 55	.....	.....	$3,440 11	$6,156 73	$240,757 02
7,213,432 44	6,464,458 08	$897,111 16	$5,345 29	.....	.....	51,312,468 70
37,194 74	11,125 00	.....	.....	711 10	250 00	75,329 64
12,510 00	19,000 00	1,500 00	.....	.....	.....	146,722 18
29,749 00	194,900 50	.....	.....	9,746 94	109,708 84	642,883 90
673,648 67	263,005 37	171,642 00	.....	.....	.....	1,927,302 20
.....	.....	.....	.....	.....	308 53	1,520 64
115,643 55	20,795 00	2,000 00	.....	500 00	554 33	384,040 09
.....	.....	.....	.....	.....	.....	5,469 23
.....	.....	.....	.....	30,000 00	.....	30,000 00
8,080,515 15	2,950,996 86	350,000 00	203,368 34	.....	.....	32,825,537 61
2,472,867 68	252,623 44	280,000 00	92,500 00	.....	.....	8,354,967 28
5,840,852 94	7,489,306 90	.....	7,050 00	.....	.....	28,238,335 69
111,116 31	12,850 00	.....	.....	6,000 00	.....	401,188 81
557,709 47	351,703 70	12,000 00	6,202 00	.....	.....	4,000,766 97
$25,167,160 61	$18,066,736 40	$1,714,253 16	$314,465 63	$50,398 15	$116,978 43	$128,587,289 96

Trust Companies in Liquidation.

$1,700 00	$12,670 98	.....	.....	.....	.....	$57,142 56
280 00	.....	.....	$6,909 09	.....	$207,463 66	222,262 78
.....	.....	.....	500 00	.....	59,202 63	66,458 12
$1,980 00	$12,670 98	.....	$7,409 09	.....	$266,666 29	$345 863 46
$25,169,140 61	$18,079,407 38	$1,714,253 16	$321,874 72	$50,398 15	$383,644 72	$128,933,153 42

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TABLE NO. 12.—LIABILITIES OF TRUST COMPANIES.

NAME.	LOCATION.	Capital Stock.	Surplus.	Profit on hand.
Central	Providence	$100,000 00	.....	$3,962 28
Industrial	Providence	3,000,000 00	4,000,000 00	1,357,811 53
Italo-American Mutual	Providence	38,057 00	4,000 00	290 22
Kingston	Kingston	105,000 00	12,600 00	3,241 22
New England	Providence	140,000 00	.....	27,753 92
Newport	Newport	300,000 00	120,000 00	43,056 63
Pawtucket	Pawtucket	500 00	.....	.....
Phenix	Phenix	100,000 00	24,000 00	28,414 04
Producers	Woonsocket	5,000 00	.....	469 23
Providence	Providence	30,000 00	.....	.....
Rhode Island Hospital	Providence	1,000,000 00	1,500,000 00	591,264 66
Slater	Pawtucket	500,000 00	500,000 00	344,609 24
Union	Providence	500,000 00	2,250,000 00	22,709 40
Wakefield	Wakefield	100,000 00	40,000 00	15,387 37
Washington	Westerly	200,000 00	200,000 00	63,791 98
Total	.....	$6,118,557 00	$8,650,600 00	$2,502,761 72

Trust Companies in Liquidation.

Manufacturers	Providence	.....	.....	$57,142 56
Mercantile	Providence	$222,000 00	.....	238 59
R. I. Mortgage and Trust	Providence	66,407 50	.....	.....
Total	.....	$288,407 50	.....	$57,381 15
Aggregate	.....	$6,406,964 50	$8,650,600 00	$2,560,142 87

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TABLE NO. 12.—LIABILITIES OF TRUST COMPANIES.—*Concluded.*

AMOUNT OF DEPOSITS.		Bank Deposits.	Other Deposits.	Other Liabilities.	Total Liabilities.
General.	Participation or Savings.				
$17,707 72	$106,410 55	.....	$3,121 47	$9,555 00	$240,757 02
14,167,697 63	26,833,727 85	1,928,431 23	24,800 46	.....	51,312,468 70
23,624 28	9,358 14	.....	.....	.....	75,329 64
11,088 38	.....	14,021 18	771 40	.....	146,722 18
38,083 07	396,793 29	.....	29,878 51	10,375 11	642,883 90
1,067,569 22	.....	18,062 48	278,613 87	100,000 00	1,927,302 20
.....	1,007 00	.....	.....	13 64	1,520 64
49,588 40	179,941 06	657 84	970 00	468 75	384,040 09
.....	.....	.....	.....	.....	5,469 23
.....	.....	.....	.....	.....	30,000 00
13,279,760 34	15,536,187 35	170,002 35	719,382 91	28,940 00	32,825,537 61
3,173,400 76	3,766,327 19	70,630 09	.....	.....	8,354,967 28
10,584,004 68	13,981,481 03	344,767 34	462,249 04	93,124 20	28,238,335 69
159,461 29	62,490 63	23,557 27	.....	292 25	401,188 81
750,995 02	2,775,793 95	10,186 02	.....	.....	4,000,766 97
$43,322,980 79	$63,649,518 04	$2,580,315 80	$1,519,787 66	$242,768 95	$128,587,289 96

Trust Companies in Liquidation.

.....	.....	.....	.....	.....	$57,142 56
.....	$24 19	.....	.....	.....	222,262 78
.....	.....	.....	.....	$50 62	66,458 12
.....	$24 19	.....	.....	$50 62	$345,863 46
$43,322,980 79	$63,649,542 23	$2,580,315 80	$1,519,787 66	$242,819 57	$128,933,153 42

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TABLE NO. 13.—MISCELLANEOUS.

Showing Whole Number of Depositors, Largest Amount Due any one Depositor, Amount, Date, and Rate Per cent. of Last Interest, or Dividend, Amount of Reserved Profits at Time of Last Interest or Dividend, and Average Rate of Interest or Dividend for the Last Three Years, of Trust Companies Having a Participation, or Savings, Account.

NAME.	LOCATION.	Whole Number of Depositors.	Number depositing $500 and under $1,000.	Number depositing $1,000 and upwards.
Central	Providence	2,999	29	11
Industrial	Providence	40,513	5,446	7,548
Italo-American Mutual	Providence	96	2	1
New England	Providence	13,932	73	24
Pawtucket	Pawtucket	7	.....	1
Phenix	Phenix	433	62	47
Rhode Island Hospital	Providence	4,900	1,165	2,542
Slater	Pawtucket	8,808	906	1,048
Union	Providence	25,209	2,422	3,020
Wakefield	Wakefield	56	19	16
Washington	Westerly	4,601	614	835
Total	.....	101,554	10,738	15,093

Trust Companies in Liquidation.

Mercantile	Providence	5	.....	.....
Total	.....	5	.....	.....
Aggregate	.....	101,559	10,738	15,093

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TABLE No. 13.—MISCELLANEOUS.—*Concluded.*

Largest Amount Due any one Depositor.	Last Dividend.			Amount of Reserved Profits at Time of Last Dividend.	Average Rate of Dividend for the Last Three Years.
	Amount.	Date.	Rate.		
$3,741 60	$1,526 47	Jan. 1, 1907	4.50 per cent.	.....	4.50 per cent.
51,000 00	516,687 11	Feb. 16, 1907	4 per cent.	$4,937,962, 12	4 per cent.
1,000 00	83 90	Apr. 15, 1907	4 per cent.	196 75	4 per cent.
17,000 00	3,681 57	May 17, 1907	4 per cent.	.....	4 per cent.
1,001 00	.....	.....	.....	.....	.....
5,304 80	3,111 55	Feb. 16, 1907	4 per cent.	43,672 73	4 per cent.
141,705 25	216,548 37	May 10, 1907	4 per cent.	1,962,242 67	3.583 per cent.
15,170 00	67,317 02	Apr. 16, 1907	4 per cent.	797,400 78	4 per cent.
49,607 20	219,168 84	Mar. 1, 1907	4 per cent.	2,203,881 36	4 per cent.
12,500 00	1,115 10	Feb. 1, 1907	4 per cent.	11,606 54	4 per cent.
22,146 65	54,210 74	June 1, 1907	4 per cent.	240,357 73	4 per cent.
.....	$1,083,450 67	.....	*3.68+per cent.	$10,197,320 68	*3.644+per cent.

Trust Companies in Liquidation.

$21 49	.....	.....	.....	.....	.....
$21 49	.....	.....	.....	.....	.....
.....	$1,083,450 67	.....	*3.68+per cent.	$10,197,320 68	*3.644+per cent.

*Average.

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TABLE NO. 14.

A SUMMARY OF THE CONDITION OF THE TRUST COMPANIES ON JUNE 29, 1907.

RESOURCES.

Cash on hand	$3,704,059 45
Due from United States Treasurer	164,000 00
Due from banks, bankers, and trust companies	13,996,791 98
Call loans to banks and bankers	873,571 28
Call loans to individuals and corporations	13,838,423 86
Mortgages on real estate	8,944,048 77
Stocks	19,014,363 40
Bonds	22,679,175 94
Loaned on personal security	25,169,140 61
Loans secured by pledge of bonds, stocks, or other collateral	18,079,407 38
Banking house	1,714,253 16
Other real estate	321,874 72
Furniture and fixtures	50,398 15
Othes resources	383,644 72
Total resources	$128,933,153 42

LIABILITIES.

Capital stock	$6,406,964 50
Surplus	8,650,600 00
Profit on hand	2,560,142 87
Amount of deposits (general account)	43,322,980 79
Amount of deposits (participation or savings account)	63,649,542 23
Bank deposits	2,580,315 80
Other deposits	1,519,787 66
Other liabilities	242,819 57
Total liabilities	$128,933,153 42

MISCELLANEOUS.

Participation or Savings Account.

Number of trust companies	18
Amount of deposits	$63,649,542 23
Whole number of depositors	101,559
Number depositing $500 and under $1,000	10,738
Number depositing $1,000 and upwards	15,093
Largest amount due any one depositor	$141,705 25
*Average rate per cent. of annual dividend	3.68+ per cent.
*Average rate per cent. for last three years	3.64+ per cent.
*Amount of reserved profits at time of last dividend	$10,197,320 68
Increase of deposits from previous year	1,909,207 83
Decrease of depositors	4,728
Decrease of those depositing $500 and less than $1,000	300
Decrease of those depositing $1,000 and upwards	1,514

*Exclusive of companies which paid no dividends

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TABLE NO. 15.

Showing the Number, Condition, and Progress of all the Trust Companies of Rhode Island in Each Year from 1869 to 1907, Inclusive, also Amount of Deposits in Participation or Savings Account.

YEARS.	No. of trust companies.	Number of depositors.	Amount of deposits.	Increase or decrease over last year.	Average to each depositor.	Average to each person in State.	Population—about.
*1869....	1	.....	$451,056 27	.....	.....	$2 43	184,965
*1870....	1	.....	1,226,767 20	Inc. $775,710 93	.....	5 64	217,353
*1871....	1	.....	2,234,640 19	1,007,872 99	.....	10 27	.....
*1872....	1	.....	2,550,527 58	315,887 39	.....	11 73	.....
*1873....	1	.....	2,771,881 00	221,353 42	.....	12 75	.....
*1874....	1	.....	3,696,344 43	924,463 43	.....	17 00	.....
*1875....	1	.....	4,480,905 52	784,561 09	.....	17 35	258,239
*1876....	1	.....	3,905,683 05	Dec. 575,222 47	.....	15 12	.....
1877....	1	1,081	3,266,630 00	639,053 05	$3,021 76	12 64	258,239
1878....	1	1,041	2,998,125 21	268,504 79	2,880 04	11 60	.....
1879....	1	1,015	2,866,045 98	132,079 23	2,823 69	11 09	.....
1880....	1	1,158	3,265,398 56	Inc. 399,352 58	2,819 86	11 79	276,531
1881....	1	1,283	3,647,065 10	381,666 54	2,842 60	13 18	.....
1882....	1	1,355	3,845,856 50	198,791 40	2,838 27	13 90	.....
1883....	1	1,357	3,902,799 79	56,943 29	2,876 04	14 11	.....
1884....	1	1,334	3,811,698 34	Dec. 91,101 45	2,857 34	13 78	304,284
1885....	1	1,358	4,016,275 55	Inc. 204,577 21	2,957 48	13 19	.....
1886....	1	1,434	4,284,214 15	267,938 60	2,987 59	14 07	.....
1887....	2	1,513	4,500,332 03	216,117 88	2,974 44	14 78	.....
1888....	2	1,853	5,264,266 04	763,934 01	2,840 94	17 30	.....
1889....	3	2,471	6,004,994 82	740,728 78	2,433 02	19 73	.....
1890....	6	3,328	6,976,611 16	971,616 34	2,096 33	20 16	345,506
1891....	5	3,724	6,780,225 89	Dec. 196,385 27	1,820 68	19 62	.....
1892....	5	4,503	7,732,856 62	Inc. 952,630 73	1,710 60	22 38	.....
1893....	4	5,136	7,959,703 45	226,846 83	1,160 37	23 03	.....
1894....	4	5,390	8,829,247 46	869,544 01	1,638 07	25 55	.....
1895....	4	6,431	9,463,054 51	633,807 05	1,471 47	24 58	384,758
1896....	4	7,066	9,900,842 65	437,788 14	1,401 19	25 73	.....
1897....	4	7,610	10,302,743 08	401,900 43	1,353 84	26 77	.....
1898....	5	8,260	11,182,939 01	880,196 93	1,353 86	29 06	.....
1899....	4	9,802	13,532,081 69	2,339,142 68	1,380 54	35 11	.....
1900....	7	13,498	16,844,852 88	3,312,771 19	1,247 88	39 54	428,556
1901....	7	17,554	19,789,760 38	2,944,907 50	1,127 36	45 24	.....
1902....	8	36,893	28,141,103 74	8,351,343 36	766 54	65 66	.....
1903....	8	43,583	32,655,798 04	4,514,694 30	749 25	76 19	.....
1904....	11	65,069	43,596,176 69	10,940,378 65	669 81	101 73	.....
1905....	13	84,819	52,360,242 64	8,764,065 95	617 31	122 17	.....
1906....	13	106,287	61,740,334 40	9,380,091 76	580 88	128 60	480,082
1907....	†12	101,559	63,649,542 23	1,909,207 83	626 72	132 54	.....

*No record of number of depositors.

†Not including six companies, which have no savings deposits.

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TABLE NO. 16.

SHOWING THE AMOUNT INVESTED IN MORTGAGE LOANS IN OTHER STATES BY THE SEVERAL TRUST COMPANIES OF THIS STATE.

Name of State.	*Amount Loaned.*
Connecticut	$200,592 00
Florida	15,600 00
Illinois	323,500 00
Iowa	714,689 00
Kansas	278,700 00
Massachusetts	74,510 00
Minnesota	338,066 85
Missouri	1,575, 00
Nebraska	456,400 00
New York	7,000 00
South Dakota	52,800 00
Virginia	5,000 00
	$2,468,432 85

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TABLE No. 17.

AMOUNT OF GOLD COIN, GOLD CERTIFICATES, SILVER COIN, ETC., HELD BY TRUST COMPANIES.

NAME.	LOCATION.	Amount of Gold Coin.	Amount of Gold Certificates.	Amount of Silver Coin.	United States Treasury and National BankNotes.
Industrial.....	Providence..	$126,981 50	$358,490 00	47,392 19	$563,218 00
Italo-American Mutual.....	Providence..	.....	440 00	75 97	1,230 00
Kingston.....	Kingston....	435 00	900 00	387 00	3,256 00
New England..	Providence..	640 00	10,620 00	443 25	7,957 00
Newport.....	Newport....	1,365 00	4,500 00	6,294 33	34,207 00
Phenix.....	Phenix.....	121 00	230 00	1,073 45	7,573 00
R. I. Hospital.	Providence..	560,614 15	*78,500 00	45,685 64	557,582 00
Slater.....	Pawtucket..	5,700 00	17,000 00	20,280 34	185,305 00
Union.....	Providence..	22,000 00	*385,000 00	30,650 43	360,000 00
Wakefield.....	Wakefield...	4,300 00	4,460 00	3,800 00	19,780 00
Washington...	Westerly....	16,037 40	6,520 00	1,793 14	20,430 00
Total.....	.....	$738,194 05	$866,660 00	$157,875 74	$1,760,538 00

* And bars.

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State of Rhode Island and Providence Plantations.

THIRTY-EIGHTH ANNUAL REPORT

OF THE

BOARD OF STATE CHARITIES AND CORRECTIONS

OF

RHODE ISLAND

1906.

OFFICE, STATE HOUSE, (ROOM 126.) PROVIDENCE.

HOWARD, R. I.
PRINTED AT SOCKANOSSET SCHOOL FOR BOYS.
1907.

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BOARD OF

STATE CHARITIES AND CORRECTIONS OF RHODE ISLAND.

CHAIRMAN:
JAMES F. McCUSKER.

SECRETARY:
CHARLES H. PECKHAM.

MEMBERS OF THE BOARD, WITH POST OFFICE ADDRESSES:

JOHN J. WATSON, JR., PROVIDENCE.....Term expires Feb. 1, 1912.
WALTER A. READ, PROVIDENCE.....Term expires Feb. 1, 1911.
ROBERT H. I. GODDARD, PROVIDENCE.....Term expires Feb. 1, 1910.
PHILIPPE BOUCHER, WOONSOCKET.....Term expires Feb. 1, 1910.
JAMES F. McCUSKER, PONTIAC.....Term expires Feb. 1, 1909.
GEORGE R. LAWTON, TIVERTON.....Term expires Feb. 1, 1909.
ROBERT F. RODMAN, ALLENTON.....Term expires Feb. 1, 1908.
THOMAS W. WATERMAN, PROVIDENCE.....Term expires Feb. 1, 1907.
HARRY H. SHEPARD, BRISTOL.....Term expires Feb. 1, 1907.

Agent of State Charities and Corrections:
WALTER R. WIGHTMAN, PROVIDENCE.

Superintendent, State Farm, Workhouse and House of Correction and Almshouse.
JAMES H. EASTMAN.

Superintendent State Hospital for Insane:
FREDERICK B. JEWETT, M. D.

Warden of the State Prison:
ANDREW J. WILCOX.

Superintendent, Sochanosset School for Boys:
JAMES H. EASTMAN.

Superintendent, Oaklawn School for Girls:
JAMES H. EASTMAN.

Deputy Superintendent, Workhouse and House of Correction:
TIMOTHY P. DODGE.

Deputy Superintendent, Almshouse:
ASA L. MAY.

Deputy Superintendent, Oaklawn School for Girls,
CLARA F. FORBUSH.

Deputy Warden, State Prison.
S. EDMUND SLOCUM.

Deputy Superintendent, State Hospital for the Insane.
GEORGE E. SIMPSON, M. D.

Resident Physician, State Institutions:
HENRY A. JONES, M. D.

Assistant Physician at the State Hospital for Insane:
EDGAR L. HANSCOM, M. D.

Interns, State Institutions:
JOHN M. McLEOD, M. D., PATRICK J. McKENZIE, M. D.,
GEORGE A. MILLER, M. D., RICHARD T. GALVIN, M. D.

Pharmacist:
EVERETT F. CORLISS.

Religious Instructor, State Institutions:
CHARLES H. EWER.

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PAST AND PRESENT MEMBERS OF THE BOARD.

Names of past members in SMALL CAPITALS, of present members in *Italics*. *Deceased.

NAME.	RESIDENCE.	DATE OF APPOINTMENT.	DATE OF RE-APPOINTMENT.	DATE OF RESIGNATION.	END OF TERM.
*JONATHAN BRAYTON	Warwick	May Session, 1869		March 18, 1871	
*THOMAS A. DOYLE, Chairman	Providence	May Session, 1869		April 11 1871	
*JAMES M. PENDLETON	Westerly	May Session, 1869		April 19. 1871	
*HENRY H. FAY	Newport	May Session, 1869	June 1, 1870	April 20, 1871	
*HENRY W. LOTHROP	Providence	May Session, 1869		May 11, 1874	
*EDWIN M. SNOW, Secretary	Providence	June 1, 1869		November 30, 1872	
*EDWARD D. PEARCE, Chairman	East Providence	May Session, 1871			June 1, 1874.
*HORACE BABCOCK	Westerly	May Session, 1871	June 1, 1872	May, 1876	
*SAMUEL W. CHURCH	Bristol	May Session, 1869	June 1, 1871		June 1, 1877.
*ALLEN C. MATHEWSON, died in office Feb. 21, 1878	Barrington	May Session, 1877			
*GEORGE I. CHACE, Chairman	Providence	May Session, 1874	June 1. 1880	October 11, 1888	
*JOB KENYON	Warwick	May Session, 1871	June 1, 1873-1879	May, 1884	
*WILLIAM H. HOPKINS	Providence	May Session, 1874	June 1, 1875-1881		June 1, 1887.
*WILLS M. PENDLETON, Chairman, (Feb. 16, 1889.)	Providence	January 1, 1873	July 1, 1888	Aug. 1887-May, 1892.	
WILLIAM W. CHAPIN, Secretary	Westerly	May Session, 1876	June 1, 1878-1884	May. 1888	
*SAMUEL H. CROSS, Secretary	Westerly	August 1, 1887		July, 1888	
*ALFRED B. CRADSEY	North Kingstown	May Session, 1877	June 5, 1883		June 1, 1889.
*LEWIS B. SMITH	Barrington	February 26, 1878	June 5, 1883		June 1, 1889.
*NATHAN F. DIXON	Westerly	May Session, 1888		April, 1889	
JOSEPH U. STARKWEATHER	Barrington	May Session, 1889		November, 1889	
*ORLANDO R. SMITH	Westerly	April, 1889			June 1, 1890.

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PAST AND PRESENT MEMBERS OF THE BOARD.—*Continued.*

Name of past members in SMALL CAPITALS, of present members in *Italics* *Deceased.

NAME.	RESIDENCE.	DATE OF APPOINTMENT.	DATE OF RE-APPOINTMENT.	DATE OF RESIGNATION.	END OF TERM.
*STEPHEN R. WEEDEN	Providence	May Session, 1877	June 5, 1880-1886	October, 1891	
*WILLIAM H. HOPKINS	Providence	November, 1891			June 1, 1892.
CHARLES H. PECKHAM	Scituate	Nov. Session, 1887		May, 1892	
HENRY L. GREENE	Warwick	May Session, 1884	June 1, 1891	Nov. 18, 1892	
*WILLIAM S. HAYWARD	Providence	January 23, 1884	June 1, 1886-1892	April 30, 1896	
*WILLIAM H. SPOONER, died in office July 13, 1895.	Bristol	Nov. Session, 1889	June 1, 1895		
*THOMAS COGGESHALL, Chairman	Newport	May Session, 1871	June 1, '79, '82, '88, '94	September, 1895	
PHINEAS O. LITTLEFIELD	Dis. of Narragans't	May Session, 1890			June 1, 1896.
GEORGE B. WATERHOUSE	Warwick	December, 1892			June 1, 1897.
JOHN H. NORTHRUP	Warwick	May Session, 1897		September, 1897	
J. C. B. WOODS, Chairman	Providence	May Session, 1892			June 1, 1898
*FRANK F. ONLEY	Providence	May Session, 1898			June 1, 1898.
*JAMES B. HANAFORD, died in office Dec. 5, 1898.	Warwick	September, 1897			
GEORGE W. CUTTER	Newport	October, 1895			June 1, 1900.
*ELLERY H. WILSON	East Providence	May Session, 1889	June 5, 1895		June 1, 1901.
*WILLIAM GREGORY, died in office Dec. 19, 1901.	Wickford	May Session, 1896			
*FRANK F. ONLEY, died in office Oct. 24, 1903	Providence	Jan. Session, 1901			
MATHEW J. CUMMINGS	Providence	November 9, 1903			
*Ellery H. Wilson, died in office Jan. 29, 1906	East Providence	Jan. Session, 1903			
George L. Smith	Barrington	September, 1895	January, 1901	January, 1906	Jan. 1, 1906.

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PAST AND PRESENT MEMBERS OF THE BOARD. *Continued.*

Name of past members in SMALL CAPITALS, of present members in *Italics.* *Deceased.

NAME.	RESIDENCE.	DATE OF APPOINTMENT.	DATE OF RE-APPOINTMENT.	DATE OF RESIGNATION.	END OF TERM.
James F. McCusker, Chairman	Warwick	December, 1898	January, 1908		Feb. 1, 1909.
John J. Watson, Jr.	Jamestown	May Session, 1900	January, 1906		Feb. 1, 1912.
Walter A. Read	Gloucester	November, 1892	June 1, '98, '99, 1905		Feb. 1, 1911.
Robert H. I. Goddard	Providence	May Session, 1898	January, 1904		Feb. 1, 1910.
Philippe Boucher	Woonsocket	May Session, 1898	January, 1904		Feb. 1, 1910
George R. Lawton	Tiverton	Jan. Session, 1906			Feb. 1, 1909.
Robert F. Rodman	Wickford	Jan. Session, 1902			Feb. 1, 1908.
Thomas W. Waterman	Providence	Jan. Session, 1904			Feb. 1, 1907.
Harry H. Shepard	Bristol	Jan. Session, 1904			Feb. 1, 1907.

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MALE CONSUMPTIVES HOSPITAL, STATE ALMSHOUSE

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THIRTY-EIGHTH ANNUAL REPORT

OF THE

Board of State Charities and Corrections.

To the Honorable General Assembly of the State of Rhode Island at its January Session, 1907.

The Board of State Charities and Corrections respectfully present their report for the year ending December 31, 1906, as required by Chapter 291, Section 11, of the General Laws of Rhode Island.

Mr. John J. Watson Jr, was reappointed member of the Board by His Excellency, Governor George H. Utter, at the January Session, 1906.

On January 29, 1906, Hon. Ellery H. Wilson died and George R. Lawton of Tiverton, was appointed to fill the unexpired term by His Excellency, Governor Utter.

In March, 1906, Mr. George L. Smith resigned his position and Mr. Harry H. Shepard, of Bristol, was appointed for the remainder of the term by His Excellency, Governor Utter.

On February 20, 1906, Rev. James H. Nutting, Religious Instructor at the Institutions died, and Rev. Charles H. Ewer was appointed to fill the position.

The following minutes are from the records of the Board, having been adopted soon after the incidents referred to, respectively:

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"Ellery H. Wilson for sixteen years and seven months a member of this Board, died suddenly while reading in his library at his home in East Providence. Mr. Wilson's career as a public man was singularly brilliant and useful. His vigorous support of all measures for the alleviation of suffering, and for promoting the true interests of the State Institutions at Howard made his services as a member of the Board of State Charities and Corrections eminently conspicuous."

"His warm heart and sympathetic interest in the inmates of the Institutions, will long serve as an example and encouragement to his associates, who now record their profound sorrow for his departure to the world of Spirits."

"The members of the Board of State Charities and Corrections have learned with unfeigned regret of the resignation from the Board, of George Lewis Smith, for ten years and six months a member, and for two years and five months its Chairman."

"We are unwilling to permit Mr. Smith to sever his associations with us without recording our sense of the loss which the State has sustained, and without expressing to him our admiration for those qualities of firmness, energy and sound judgment which made him a tower of strength upon which to lean."

"He commanded our respect and our confidence and his warm sympathy for the unfortunate in the charge of the Board endeared him to them as well as to us. We shall not soon forget his genial and tactful nature and we assure him that our best wishes will follow him in his retirement from active service."

"In the death of the Reverend James H. Nutting, for many years the Religious Instructor in the State Institutions, this Board has been deprived of the services of a wise counselor and an earnest worker."

"Mr. Nutting's untiring zeal, his unflagging enthusiasm, his manly faith in human nature won for him the friendship of all with whom he came in contact. His hand and his heart were always ready for every demand and to the very last his thoughts were all for the work so dear to him. The same intelligence, heartiness and nobility of soul which endeared him to his fellow-workers made him beloved by those whom he sought to reach for good. He never let slip among his people the opportunity to lift to higher levels of thinking and doing."

"We would thus record our appreciation of him and of his more than sixteen years of arduous labor, the results of which will not be known until the harvest time of God."

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"To his family we would extend our sympathy in the day of their trouble which is indeed also to us a time of sorrow. Thankful are we for the example and influence of so good a man, so knightly a soldier of the Cross."

CONSTRUCTION.

ADDITIONAL COTTAGE FOR THE OAKLAWN SCHOOL FOR GIRLS.

At the last session of the General Assembly an appropriation of $100,000 was made for several buildings for the Institutions, including an additional cottage for the Oaklawn School for Girls. The plans were prepared by Martin & Hall, Architects, and the work was begun late in the summer.

The construction of the foundations and the basement, to the first floor level, and excavating therefor, were done by the boys of the Sockanosset School. This part of the work has been finished and a contract for the completion of the building has been made with David J. Barry, of Providence, for $22,765.00.

It is expected that the cottage will be ready for occupancy by the beginning of 1908.

The heating, plumbing and lighting systems are to be installed by boys of the Sockanosset School, under proper superintendence, the Board providing the necessary materials and fittings.

The following description of the building is furnished by Messrs. Martin & Hall:

"The new building is located in the grove adjacent to but across the driveway from the present cottage. It faces the latter and is so placed that the floor levels of the two buildings are at about the same grade. The new structure will be of about the height of the old, but will differ from it somewhat in appearance, as a less expensive type of building has been decided upon. The walls will be of red brick and the necessary stonework, for sills, steps, etc., of granite. The main building will have a gable at either end and a slated pitched roof, with wide overhangs. Dormer-windows will light the upper story."

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"The proposed building is L-shaped in plan. The main portion is 79 ft. 6 in. long and 34 ft. 6 in. wide, with a rear extension 34 ft. long and 24 ft. wide. The heights of the several stories will be as follows: basement, 9 ft.; first story, 11 ft.; second story, 11 ft. and upper story, 9 ft. 6 in. A loft running the full length of the building will be located above the upper story."

"In the basement are planned a large recreation-room, a laundry, ironing-room, general bath-room, lavatory, store rooms cellars and a large room in which will be located the heating apparatus, with ample coal storage adjoining. From the laundry section a flight of steps will admit directly to the clothes' yard and a flight of steps is provided for entrance to the cellar from the yard."

"Both the front and rear stairways will start from the basement and run up through the building to the top story, and the rear stairway will be inclosed in a fireproof shaft from top to bottom. Self closing metal doors and frames will guard all entrances to this shaft and thus a means of escape is provided in case of fire. A similarly constructed clothes' chute will extend through the stories by which soiled linen can be sent to the laundry."

"In the first story the building is divided transversely by a hall, 8 ft. wide, at one end of which is the front entrance door and vestibule and at the opposite end the front staircase. To the right of the front entrance is the reception room 14 ft. x 16 ft. 6 in.; this room will have a bay window and a fireplace. At the left of the entrance will be located a teachers' dining-room, 14 ft. x 16 ft. 6 in. with bay-window and fireplace. A longitudinal corridor 6 ft. wide, will bisect the main hall and at one end of this corridor is placed the sewing or assembly room, 16 ft. x 31 ft. with a large bay-window and fireplace, while at the opposite end is the main dining-room, of like dimensions and with similiar bay-window and fireplace. Opening from the passage will be an office, 10 ft. x 13 ft. 4 in. and a clothes' room,

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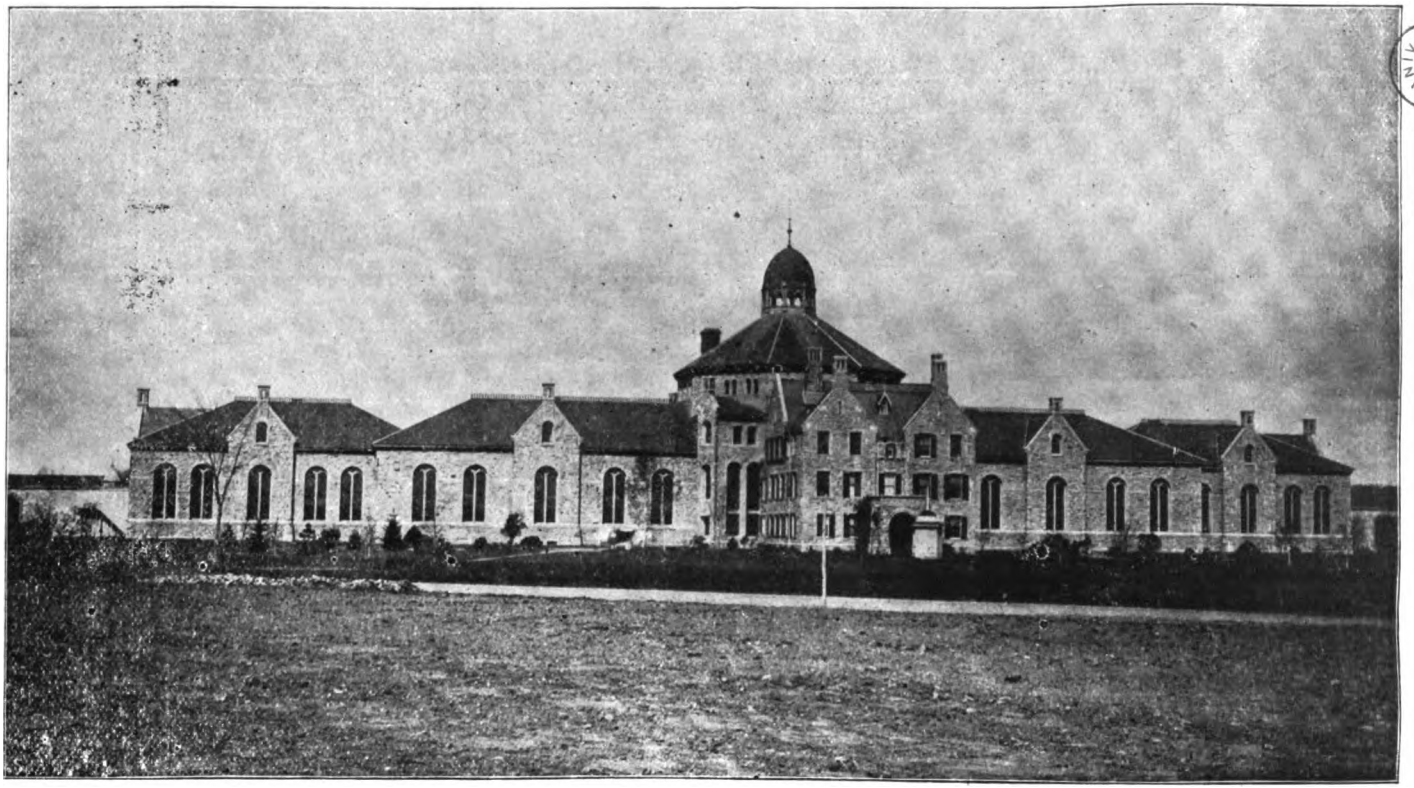

VIEW OF STATE PRISON.

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8 ft. x 10 ft. The rear stair-hall will connect with the passage and give access to the service room, kitchen, pantry and store-room. There will be a direct entrance from the yard to the kitchen."

"The second story will be bisected by a longitudinal corridor, 6 ft. wide, with which both stairways connect, and from this corridor will open the school-room, 16 ft. 6 in. x 31 ft. 4 in., two teachers' rooms, 12 ft. 4 in. x 14 ft. 8 in., and a linen-closet, slop-closet and bath-rooms; other storage and linen closets are arranged in the rear extension, and on this floor will be located eleven bed-rooms, 8 ft. x 12 ft. 4 in., each, for inmates."

"The third story will contain fifteen bed-rooms, 8 ft. x 12 ft. 4 in. each; an infirmary, 12 ft. 4 in. x 16 ft. 10 in.; a teachers' room, 12 ft. 4 in. x 16 ft. 6 in., and linen, store and slop closets, bath room and other arrangements similar to those provided for the second story."

"A loft, which can be used for storage, will extend over a portion of the third story."

"The structure throughout will be finished in a plain, substantial manner, furnished with a modern equipment, and the plumbing system will be simple and thoroughly sanitary. Ample provision will be made for heating and precautions will be taken to guard against fire and loss of life from panic. The building throughout will be well lighted and ventilated."

IMPROVEMENT OF QUARANTINE HOSPITAL AT THE ALMSHOUSE.

A wooden building measuring sixty by forty feet, constructed many years ago and since used for several different purposes, having been refitted lastly in 1902, for use in case of an outbreak of small-pox (see report of 1902, p. 12) was moved the past year about two hundred feet north westward, across a driveway, to a new location. It formerly stood on the rear, or northwest, line of the Almshouse grounds. The building was raised twelve and a half feet above grade and another story, of stone plastered, with granite coins, was constructed under it. It is divided into eight sleeping-rooms, with a central hall five feet

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wide, and two toilet-rooms. The sleeping-rooms are each 15½ ft. by 12½ ft.; the toilet-rooms are each 12½ ft. by 5½ ft. and all are 9½ ft. high.

Set bowls with hot and cold water, steam, heat and gas are provided in each room and the building has been wired for electricity to be used should that method of lighting be introduced generally at the Institutions. There are bath-tubs and water-closets in the toilet-rooms.

There is a door at each end of the new story and a stairway and entrance at one end of the upper story, as shown in the picture of the building.

There is no inside means of communication between the two floors. Another outside stairway and exit, for escaping from the upper story, in case of fire, may be constructed at the other end of the building.

The lower story will be used by employes of the Institutions and the upper story will be kept ready, as heretofore, for any outbreak of contagious disease that requires isolating.

All of the work, including the moving of the building, the stone work, the carpentering, steam piping, plumbing, painting etc., was done by the labor of the Institutions at a cost, for material, of $2,486.68.

Some repairs will be required in the upper story to make it ready for occupancy. The expense of this work will be slight.

CONDUIT FOR STEAM-PIPES AT STATE HOSPITAL FOR THE INSANE.

Inmates of the Workhouse and House of Correction, including brick-layers, stone-masons, mortar-mixers, hod carriers etc, began, late in the autumn, the construction of the conduit for steam-pipes above named. It starts from a similar conduit built in 1901, (see report for 1901, p. 10) and leading from the new boiler-house of the Hospital for the Insane to the dining-hall of the same institution, and will terminate, when completed, at the laundry, a distance of 276 feet. A branch of the conduit, thirty-nine feet long, leads to building No. 9 X.

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The conduit has stone side-walls and is covered by a brick arch. The dimensions are:—side-walls five and one-half feet in height; opening, six feet four inches by four feet.

Twenty-one feet in length of each side-wall and fifty-two feet of the arch remain to be completed.

The excavating and backfilling and the removal of surplus earth were done by inmates and teams of the State Hospital for the Insane.

SHEDS FOR CARTS, ICE-HOUSE, ETC., AT HOSPITAL FOR THE INSANE.

The shed was mentioned in the last report, the material for it having been bought and the foundations laid in 1905. It was finished the past year. It is 108 feet long by 25 feet wide with eighteen feet of one end closed in. This portion was floored overhead for the storage of grain etc.

The ice-room provided in the new service building having proved inadequate, ice not keeping well in it, a detached ice-house has been built, measuring 60 ft. by 30 ft. by 20 ft. and having a capacity of approximately six hundred tons. The cost was $1,159.21.

A ten-ton scale has been added to the equipment of the barn.

GREENHOUSE AT SOCKANOSSET SCHOOL FOR BOYS.

This building, seventy ft. long and thirty-five ft. wide, begun in 1905, was finished early the past summer. Mr. Eastman says:—"A new industrial and educational industry is thus opened which promises also to be remunerative." Plants have been propagated, principally pinks, the flowers from which have been sold at a good price.

The mason work, wood-work and steam-fitting were done by the boys. The painting and glazing were done by the labor of other institutions. The cost for materials was $1,447.99.

SHED AT STATE PRISON AND PROVIDENCE COUNTY JAIL.

A shed, for the storage of vehicles etc., has been built and nearly finished at the State Prison, at an expense of $1,215.25.

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ROAD BUILDING.

The rebuilding of Brayton Avenue, along the south side of the Oaklawn School grounds, and the road leading from this avenue to the buildings of the School, has been commenced. The avenue is 2313 feet in length and fifteen feet of it in width will be underlaid with large stone covered with broken stone and gravel well rolled. Along the sides of this strip the large stones are laid more deeply so as to hold the central portion in place. The undertaking will furnish work for the inmates of the Workhouse and House of Correction this winter when the weather permits them to work out of doors, breaking stone with hammers for surfacing the road. The Town of Cranston will give the use of its steam-roller when the road is ready for rolling.

FARM IMPROVEMENTS.

The gutter on the north-west side of Woodlawn Avenue, thirty-eight rods long and two and one half feet wide, referred to in the report of 1906, p. 12, has been completed.

A bank-wall ten rods long has been built from Woodlawn Avenue up to the hill to the barn, thereby finishing the work of this kind that has been going on for the past two or three years.

The clearing of the side hill above the bank-wall has been completed and a lot of two and one-half acres in area has been fenced in and about one-third of it cleared.

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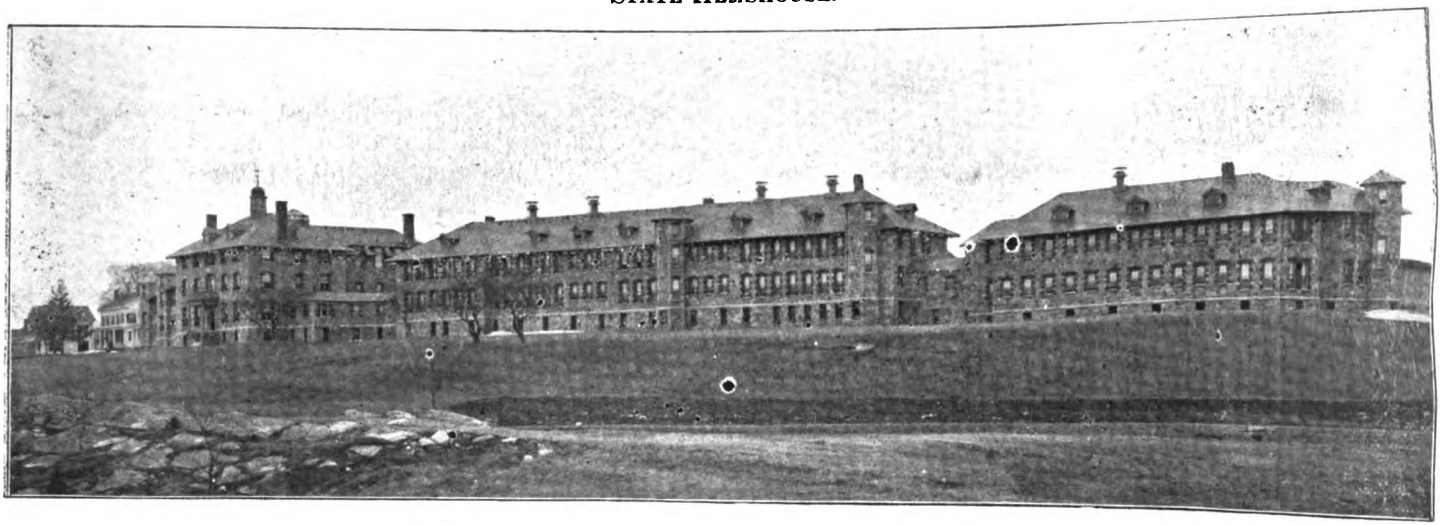
STATE ALMSHOUSE.



SUPT'S RESIDENCE. MALE WING. ADMINISTRATION BUILDING FEMALE WING. HOWARD COTTAGE FOR CHILDREN.

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STATE WORKHOUSE AND HOUSE OF CORRECTION.

Superintendent: MR. JAMES H. EASTMAN.

Deputy Supt: MR. TIMOTHY P. DODGE.

Matron: MRS. MARY E. WOOD.

The total number of persons committed to the Workhouse and House of Correction in 1906 (710) was smaller by twenty-eight than the total number committed in 1905, and the decrease was almost wholly due to the smaller number of women committed in 1906. (129. in 1906; 154 in 1905.)

Of the 710 persons committed in 1906, 276, or about 39 per cent., were common-drunkards, a larger percentage of this class of offenders than in the preceding four years, the average of which was 32 per cent.

The number of deaths in 1906, ten, was the same as in 1905. The average number for the past ten years was five and four tenths.

How the skilled labor of this institution is made useful, is indicated in the following memorandum of Mr. Eastman, the Superintendent:

"A gang of painters have been kept busy the whole year painting inside and out in the different departments where needed, in part as follows:

The women's wing of the Workhouse and House of Correction has been thoroughly renovated, every room therein with paint and kalsomine, from top to bottom; also the men's dining-room, cell-rooms, the cookhouse, the family kitchen, and the guard-room. The building used for blacksmith and paint-shops was given an outside coating of paint."

"At the Almshouse, the chapel, the Deputy's private rooms, the family dining-room and the reception-room were thoroughly renovated. All the sash and window frames of the men's wing were painted outside. They put on an outside coat of

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paint to the Quarantine Hospital, the moving of which building is described elsewhere."

"The Oaklawn School Building was also given a thorough renovation of every room and hallway in the house."

"Much work of a similar character has been done for the Sockanosset School by trusty inmates from the Workhouse and House of Correction who could go and return alone each day."

"Many broken windows have been reset. Wagons of all descriptions have been painted and varnished, besides carts and farm-implements of all sorts that were painted."

The labor of men of other trades—blacksmiths, carpenters, masons, steam-fitters etc., is availed of in like manner. Their work is referred to under Construction.

The men having no trade are employed in farming, building stone-walls, breaking stone, excavating for building operations when their services are so required, etc.

Mr. Eastman speaks as follows regarding the work of the inmates and the benefit they receive therefrom and through other influences at the institution:

"The labor of the inmates of the Workhouse and House of Correction has born results. The improvements described elsewhere show it, and the results from farming operations also. There is that atmosphere of submission which is indicative of a healthful administration of affairs in their interest. This is true of both men and women. Those of them having knowledge of trades are afforded an opportunity of learning more in their line. Numbers are given responsible duties lasting their entire stay, that they may not lose the opportunity to improve. We believe that the physical, mental and moral improvement is quite as large as has been the gain in other fields of institution work, although it cannot be as readily scheduled or inventoried."

"The environment and activities of the place appeal to these people's better selves. They are generally loyal to the officers who are not allowed to carry fire-arms. In every emergency

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that has arisen in late years they have responded cheerfully. If this condition of improvement proves not to be lasting, it must be due to environment after leaving the institution. They are weak men and women, slaves to passion, to appetite and all that is base in human nature; it is not just to hold us responsible if they fall after their release. We plead we are a faithful band of men and women, officers seeking to change the course of such ones' lives for the better. We make a study of our work, and have our times of meeting and discussion. We are seeking for light and increased knowledge and are doing our best possible work with the equipment the State provides. There is a reason for encouragement as regards the improvement and reformation even of many who go out from the State Workhouse and House of Correction. The moral and religious instructor and his co-workers are earnest, efficient co-operators with us.

The statistics for the Workhouse and House of Correction for 1906 are as follows:

	Men.	*Women.*	*Total.*
Number of inmates Dec. 31, 1905	214	63	277
" committed during the year	564	127	691
" committed for wilfully escaping	12	0	12
" committed for attempting to escape	1	0	1
" transferred from Reform School	1	2	3
" returned from Prov. County Jail	1	0	1
" committed for fine and costs	2	0	2
" discharged during the year	542	131	673
" escaped during the year	31	0	31
" attempted to escape during the year	1	0	1
" died during the year	10	0	10
" returned to Reform School during the year	0	2	2
" remaining Dec. 31, 1906	211	59	720

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The average number, taken from the monthly report up to 1885 and since then from the daily record, have been:

	Men.	*Women.*	*Total.*
In 1872	108	48	156
1873	146	62	208
1874	139	69	208
1875	159	64	223
1876	166	66	232
1877	146	56	202
1878	146	74	220
1879	125	66	191
1880	137	58	195
1881	149	58	207
1882	154	59	213
1883	155	59	214
1884	179	54	233
1885	165	60	225
1886	133	36	169
1887	116	40	156
1888	160	55	215
1889	178.5	57.5	236
1890	161.1-6	66.5	227
1891	187	53	240
1892	179	68	247
1893	179	60	239
1894	178	73	251
1895	172	69	241
1896	183	77	260
1897	194	77	271
1898	196	89	285
1899	189	73	262
1900	188	62	250
1901	195	67	262
1902	180	70	250
1903	188	64	252
1904	215	64	279
1905	207	62	269
1906	217	63	280

One man returned on probation died, not included in the above.

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The crops raised on the State Farm were as follows:

Apples	821½	bush.	Lettuce	649	hds.
Asparagus	654½	bush.	Melons, musk	1375	
Beans, lima	168½	bush.	Melons, water	1110	
Beans, shell	113¼	bush.	Milk	20309¼	gals.
Beans, string	282½	bush.	Onions	494⅞	bush.
Beef, fresh	7426	lbs.	Oyster plant	30	bush.
Beets, table	1194	bush.	Parsnips	229	bush.
Beets, mangle-wurtzel	3850	bush.	Peaches	16	bush.
Blackberries	1356	qts.	Pears	59¾	bush.
Butter	819¾	lbs.	Peas	143¾	bush.
Cabbage	29950	hds.	Peppers	5	bush.
Carrots	242	bush.	Pickles, cucumber	15	lbs.
Cauliflower	36	hds.	Plums	2	bush.
Celery	1320	hds.	Pork, fresh	17124	lbs.
Cherries	2¼	bush.	Pork, salt	25½	lbs.
Corn, field, shelled	512	bush.	Potatoes	5292½	bush.
Corn, sweet, ears	2331	doz.	Poultry	139¾	lbs.
Corn, fodder	66	tons.	Pumpkins	20190	lbs.
Corn, pop	27	bush.	Radishes	252	doz.
Cucumbers	2063	doz.	Rareripes	1074	doz.
Currants	183	qts.	Raspberries	661	qts.
Dandelions	336½	bush.	Rhubarb	543	lbs.
Eggs	756 ½	doz.	Rye, straw	18½	tons.
Gooseberries	845	qts.	Sausage meat	702	lbs.
Grapes	3	bush.	Spinach	331	bush.
Green oat fodder	27½	tons.	Strawberries	2053	qts.
Grass and alfalfa	27½	tons.	Squash	10891	lbs.
Hay, first crop	195½	tons.	Tomatoes	124¾	bush.
Hay, second crop	79½	tons.	Turnips, flat and ruta baga	852	bush.
Lard	960	lbs.	Veal	140	lbs.

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STATE ALMSHOUSE.

Superintendent: MR. JAMES H. EASTMAN.

Deputy Supt: MR. ASA L. MAY.

The number of inmates at the Almshouse increased during the year from 501 at the beginning to 508 at the close. The average number during the year, 512, was five larger than in 1905. The number of persons admitted, 880, was five smaller than in 1905 The number of births, twelve, was the same as in 1905. The number of deaths was forty-two larger than in 1905, (150 in 1905; 192 in 1906.)

As the number of the occupants of the Almshouse has during the past year again increased, it may be well to repeat what was said in the report of 1905 regarding the accommodations there afforded.

"Your attention is particularly called to the excess of inmates at the Almshouse above its normal capacity referred to by Mr. Eastman, and to the lack of accommodations and hospital facilities spoken of by the Physician of the Institutions in his report. This institution is nominally the State Almshouse, but the report of Dr. Jones indicates that it is largely a general hospital. With an average number of about five hundred inmates and a total during the year of less than one thousand, including those in the institution at the beginning and those admitted and born during the year, the number of deaths annually is at least one hundred and fifty. Hither are brought patients from every part of the State, some suffering with diseases that are loathsome, and many who are incurable, while not a few arrive in a moribund condition. If these cases must be cared for in an institution to which are also sent the State poor who are not so afflicted—incapacited by temporary illness or old age or otherwise—should not at least ample provision be made to keep the two classes separate? Because of

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lack of proper accommodations, it appears from the report of the Physician, this cannot now be done."

No changes of methods or of management were made here during the year and nothing occurred beyond the usual routine of caring for the inmates.

The same effective work has been done as in years past by the Agent of State Charities and Corrections in sending to their places of settlement or to their homes such of the inmates of the Almshouse as could be thus provided for. Much of interest relating to this duty will be found in the report of the Agent appended to this report.

Many friends of the institution contributed during the year, as before, to the pleasure and welfare of the inmates by gifts of flowers etc., by visits, religious instruction and musical and literary entertainments. We are very grateful for their kind acts which are fully appreciated.

In the summer, a day's outing at Field's Point was given to all of the inmates who were able and wished to be present.

The statistics for the Almshouse for 1906 are as follows:

	Men.	*Women.*	*Boys.*	*Girls.*	*Total.*
Number of inmates Dec. 31, 1905.....	219	216	37	29	501
" admitted during the year..	216	139	11	14	380
" born during the year.....			7	5	12
Two children stillborn during the year					
Number discharged during the year	108	54	13	18	193
" died during the year.....	112	70	8	2	192
" remaining Dec. 31, 1906.....	215	231	34	28	508

The average numbers, taken from the monthly reports up to 1885, and since then from the daily record, have been:

	Men.	*Women.*	*Boys.*	*Girls.*	*Total.*
In 1875.....	46	55	17	14	132
1876.....	55	66	13	12	146
1877.....	60	65	10	9	144
1878.....	67	71	14	9	161
1879.....	68	77	15	9	169

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	Men.	*Women.*	*Boys.*	*Girls.*	*Total.*
1880	71	71	18	7	167
1881	70	68	19	7	164
1882	85	73	19	13	190
1883	90	73	23	14	200
1884	85	69	28	13	195
1885	90	71	24	15	200
1886	95	66	14	10	185
1887	88	76	20	17	201
1888	102	75	11	23	211
1889	109.5	87.2	11.5	23	231.2
1890	100.7	94	11.8	20.2	226.7
1891	100.6	104	10	15.3	229.9
1892	96	113	10	15	234
1893	105	128	15	17	265
1894	107	131	17	21	276
1895	124	137	22	18	301
1896	125	144	29	22	320
1897	134	149	24	23	330
1898	150	160	31	25	366
1899	154	174	30	22	380
1900	180	175	32	14	401
1901	186	178	35	18	417
1902	187.4	192.3	31.7	22.9	434.3
1903	193.10	195.1	35.7	25.11	449
1904	210	215.6	34.5	26.5	476
1905	228	217	35	27	507
1906	225	223	38	26	512

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SETTING UP EXERCISES
SOCKANOSSET SCHOOL

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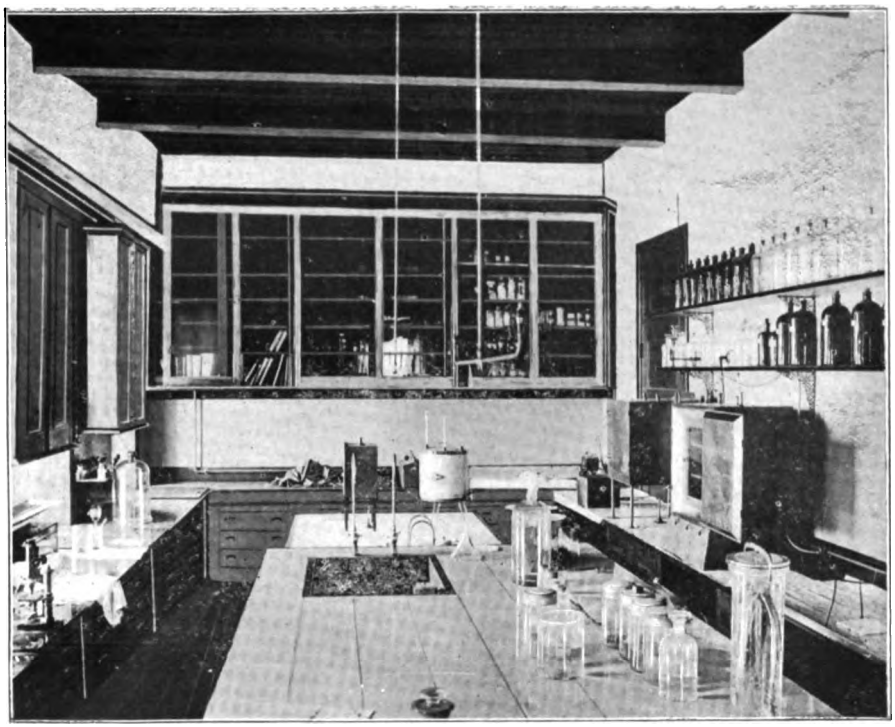

LABORATORY OF STATE ALMSHOUSE.

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STATE HOSPITAL FOR THE INSANE.

Superintendent: FRED B. JEWETT, M. D.

Deputy Supt: GEORGE E. SIMPSON, M. D.

There were 1006 patients in the Hospital for the Insane at the close of 1906, namely, 527 men and 479 women. At the close of 1905 there were 994 patients, namely, 516 men and 488 women.

The average number in 1906, namely, 1005 (517 men and 488 women), was larger by forty-five than the average number in 1905.

The number of patients admitted during 1906 was 876, the largest number in any year since the establishment of the Hospital in 1870.

The largest number of patients in the institution on any day in 1906 was 1027, August 14th, and the smallest, 989, January 4th.

The number of deaths, 164, shows a noticeable increase.

The number of patients paroled in 1906 was 289.

The following is from a report made by Dr. Jewett to the Board:

"During the spring we had a rather mild epidemic of measles, imported by an attendant and resulting in thirteen cases. Two of these, one having tuberculosis and the other pneumonia following the measles, proved fatal."

"In the fall we had several cases of typhoid-fever which could not be definitely accounted for."

"On the average, the result of the farming was as good as it was the previous year. The yield of potatoes was not so large by 1800 bushels, though the number of bushels planted was the same. On the other hand, we were free from hog-cholera during the year, and we have already used 9,500 lbs. of pork raised on the Hospital farm in 1906 and have thirty-one hogs and 126 shoats to carry over to next year."

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"Our total number of cattle has remained approximately the same, as there has been no increase in barn facilities and all the room for cattle was already occupied. Following our plan of raising our own herd, we reared five calves the past year and have in all sixteen animals under two years of age."

Dr. Jewett speaks of many accommodations needed at the Hospital for the Insane, among them, especially, is an administration building. An appropriation for the construction of a building of this character has many times been urgently requested by the Board. In the report of 1902, the late Superintendent of the Hospital for the Insane, Dr. George F. Keene, wrote as follows:

"The work will, however, necessarily be incomplete, and the usefulness of the present additions to this already large institution will be seriously impaired and their management unwieldy, if an appropriation is not speedily made to erect the administration building, which is an essential unit in the whole plan. The need of an administration building cannot be too strongly urged upon the legislature. There is at present no accommodation worthy of the name for the Superintendent's or any other office. There is no accommodation for the reception and taking the history of new patients, which is now attempted in a small room serving not only for the physician's library but also for the general thoroughfare of the institution. Times without number has it been necessary on visiting days to receive new patients in this room who were violent and vulgar in speech and behavior upon commitment, when the room was so crowded with friends of other patients that one could push his way through it only with difficulty. The matter should receive careful consideration and the relief should be furnished which the erection of the proposed administration building would adequately provide."

Dr. Jewett calls attention, also, to the small number of

physicians and attendants at the Rhode Island Hospital for the Insane compared with the number employed at similar hospitals in other States, adding, however, that no increase of the staff can be made at present because there are no accommodations for this purpose.

He also suggests that the old buildings on the Silva purchase, now part of the Hospital farm, be improved and enlarged so as to furnish greater facilities for keeping live-stock and also provide accommodations for a farm-colony of forty or fifty chronic patients, to be under the immediate care of the farmer and his family. The colony method of caring for certain classes of the insane was favorably spoken of by Dr. Keene in the report of 1904.

The statistics for the State Hospital for the Insane for 1906 are as follows:

	Men.	*Women.*	*Total.*
Number of Inmates Dec. 31, 1905	516	478	994
Number committed during the year	217	159	376
Number of escaped inmates returned	14	0	14
Number returned from parole	98	53	151
Total	845	690	1535
Number discharged during year	39	19	58
Number died during year	89	74	163
Number escaped during year	19	0	19
Number of paroles during year	171	118	289
Total	318	211	529
Number remaining Dec. 31, 1906	527	479	1006
Discharged at expiration of parole	76	55	131

One inmate, who was not committed, died, making the total number of deaths 164.

The average numbers taken from the monthly reports up to 1885, and since then from the daily record, have been as follows:

	Men.	*Women.*	*Total.*
In 1872	70	78	148
1878	78	84	162

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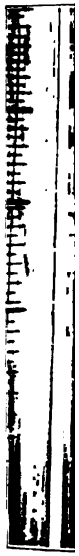
	Men.	Women.	Total.
1874	84	82	166
1875	86	84	170
1876	101	87	188
1877	110	94	204
1878	113	103	216
1879	123	115	238
1880	114	127	241
1881	123	143	266
1882	141	152	293
1883	147	148	295
1884	158	154	312
1885	179	170	349
1886	195	201	396
1887	210	226	436
1888	221	242	463
1889	231	264	495
1890	234 5-6	272 3-4	507 7-12
1891	245	282	527
1892	262	292	554
1893	281	292	573
1894	298	297	595
1895	311	310	621
1896	320	332	652
1897	334	358	692
1898	352	363	715
1899	349	369	718
1900	366	374	740
1901	378	374	752
1902	395 .7	405 .9	801 .6
1903	425 .7	414 .7	840 .3
1904	459	436	895
1905	503	457	960
1906	517	488	1005

Crops raised on the farm of the State Hospital for the Insane in 1906 were as follows:

Apples	150	bush.	Carrots	175	bush.
Asparagus	552	bun.	Cauliflower	82	hds.
Beans, green	87½	bush.	Calf skins	5	
Beans, lima	85	bush.	Celery	949	bun.
Beans, shell	16½	bush.	Corn, green	18551	ears.
Beef	4586	lbs.	Corn, yellow	256	bush.
Beets, table	469	bush.	Corn, pop	52	bush.
Beets, mangle wurtzel	30	tons.	Corn, fodder	143½	tons.
			Cress	22	bun.



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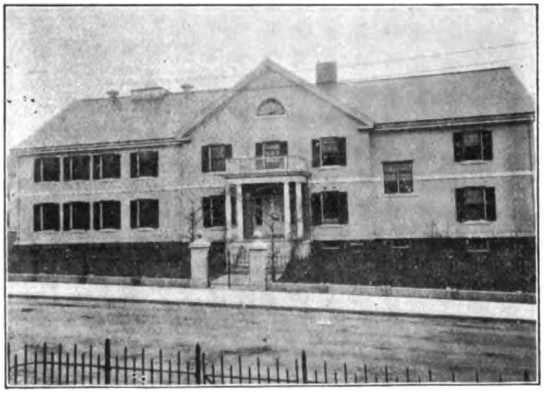
WASHINTON COUNTY JAIL.

KENT COUNTY JAIL.



NEWPORT COUNTY JAIL.

BRISTOL COUNTY JAIL.

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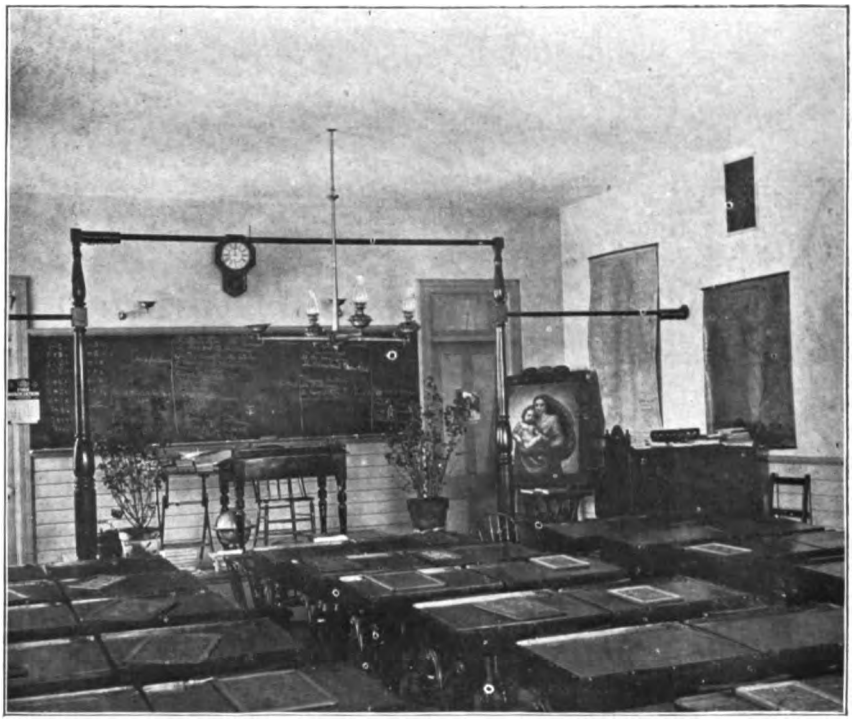
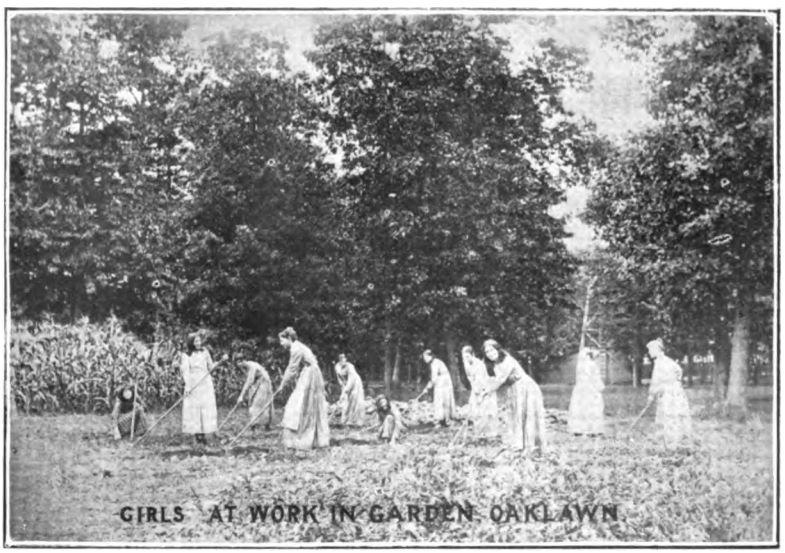


SCHOOL-ROOM, OAKLAWN SCHOOL.



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Beet greens	44	bush.	Peppers, green	½	bush.
Blackberries	1791	qts.	Pears	40½	bush.
Cabbage	15645	hds.	Pork	9491	lbs.
Cucumbers	162	bush.	Potatoes	4263	bush.
Cucumber pickles	11	bbls.	Pumpkins	3050	lbs.
Dandelions	124	bush.	Quinces	4	bush.
Eggs	340	doz.	Radishes	912	bun.
Grapes	1¾	bush.	Rareripes	3707	doz.
Hay	70½	tons.	Raspberries	301	qts.
Hungarian millet	8½	tons.	Rhubarb	3621	lbs.
Hides	12		Rye	215	bush.
Lettuce	2791	hds.	Rye straw	25	tons.
Melons, musk	7½	bush.	Sage	10	lbs.
Melons, water	652		Summer savory	4	lbs.
Milk	20551	gals.	Spinach	50	bush.
Oat fodder	39½	tons.	Squash, summer	1948	lbs.
Onions	513½	bush.	Squash, Hubbard	3560	lbs.
Parsley	26	bun.	Strawberries	5729	qts.
Parsnips	74½	bush.	Tomatoes	172½	bush.
Peaches	1	bush.	Turnips	424½	bush.
Peas, green	99½	bush.	Veal	521	lbs.
Peas, dry	6	bush.			

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STATE PRISON AND PROVIDENCE COUNTY JAIL.

Warden. MR. ANDREW J. WILCOX.

Deputy Warden. MR. S. EDMUND SLOCUM.

During the year there were forty-five men committed to the State Prison and seventy men discharged, and 1615 men were committed to the Providence County Jail and 1626 were discharged. The average number in the two institutions together during the year was 309, eight less than last year. There are two hundred and fifty-two cells.

During the year the V. Henry Rothschild Company employed 217 men in the manufacture of shirts and the Rhode Island Wire Works employed twelve men in making wire goods. The remaining men were engaged upon the farm, in breaking stone and in various ways about the institution.

The Warden reports as follows:

"The discipline the past year has been excellent. There were fewer violations of the rules and consequently less punishment."

"I desire to call the attention of the Board to the conditions which compel us to confine several men in a cell and also a large number in a wooden building in the yard which is unsafe both in regard to fires and attempts to escape. Good discipline, good morals and reformation can never reach the standard which they ought to attain, under these conditions. Nor is it desirable that state-prisoners, who are long-term men, should be confined with jail-men who are committed for short terms. The former should have different food, different exercise and different discipline, and in many ways their care should differ from the care given to the short term prisoners."

"The health of the inmates was generally excellent during the year, as may be learned from the report of the Physician."

"Some volumes have been added to the library by purchase

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and by gifts and we have many of the magazines of the day. The books are bound, catalogued and kept in good order. The library contains 4200 volumes."

"The crops raised upon the fields and in the garden of the Prison and Jail were very satisfactory, amounting in value to $9,492.52. The sum of $898.56 was received for pigs sold. We raised also 3981 lbs. of pork for use at the Prison and Jail. Our poultry plant has been a splendid success."

"During the holidays in the summer months the men were allowed their freedom in the yard, and in the winter season, on these occasions, entertainments of a high vaudeville character were provided. An extra dinner also is given them on holidays."

"The night-school was maintained, as usual, from the first of October to the first of May, under the instruction of an officer who for many years has been very successful in this work, especially in teaching the more illiterate of the inmates."

The Warden calls attention to the pressing need of larger accommodations at the Prison and Jail. For many years the Board has urged the General Assembly, in almost every report, to furnish the means of enlarging these institutions. In 1894, the Assembly authorized the Board to carry out a plan that had been prepared, of building a new jail, adjoining the present Prison and Jail, and of giving over the present buildings largely to the sole use of the Prison, and an appropriation was made for this purpose. Some preparatory work was done, but, subsequently, the Assembly revoked this appropriation because of other demands upon the revenue of the State and it has never been renewed.

The need is as urgent as ever and the Board ask once more that the reasonable requirements of the Prison and Jail be met. Several of the reports of past years contain the facts upon which this petition is based and reference to them is requested. In the last report was this:

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"The same urgent need of larger accommodations continues. The danger and inconvenience due to inadequate means of caring for and securely holding the inmates have been set forth, with greater or less detail, in the reports of the Board for more than twelve years, especially in the reports for 1897 and 1898. Quoting from the report for 1900, the Board again asks the General Assembly 'to provide the means for constructing such additional accommodations as will remove the present danger to health from overcrowding and enable the officers of the Prison and Jail to maintain proper discipline and to retain within its walls with the utmost possible security the dangerous criminals under their charge.'"

The wooden building referred to by the Warden, was constructed in 1893 to meet a serious demand for accommodations, the number of commitments at that time having been excessive. The building was intended for temporary use only and it has now been occupied almost fourteen years. It is thus described in the report of 1898:

"The temporary accommodations consist of a barrack, 113 ft. in length, 45 ft. in width, twelve feet in height at the sides and twenty at the centre. It has a monitor-roof covered with tar and gravel, with 56 four-light windows, twenty of them hung on pintles, and there are no windows on the sides. Three tiers of berths furnish sleeping accommodations for 132 men and there are tables and seats."

The "barrack" was intended for the use of short-term men only, largely those committed by the City of Providence.

The statistics of the Prison for the year 1906 are as follows:

	Males.	*Females.*	*Totals.*
Number in Prison January 1, 1906	144	0	144
" committed during the year	45	0	45
" discharged during the year	64	0	64
" pardoned during the year	4	0	4
" died during the year	2	0	2
" in Prison January 1, 1907	119	0	119

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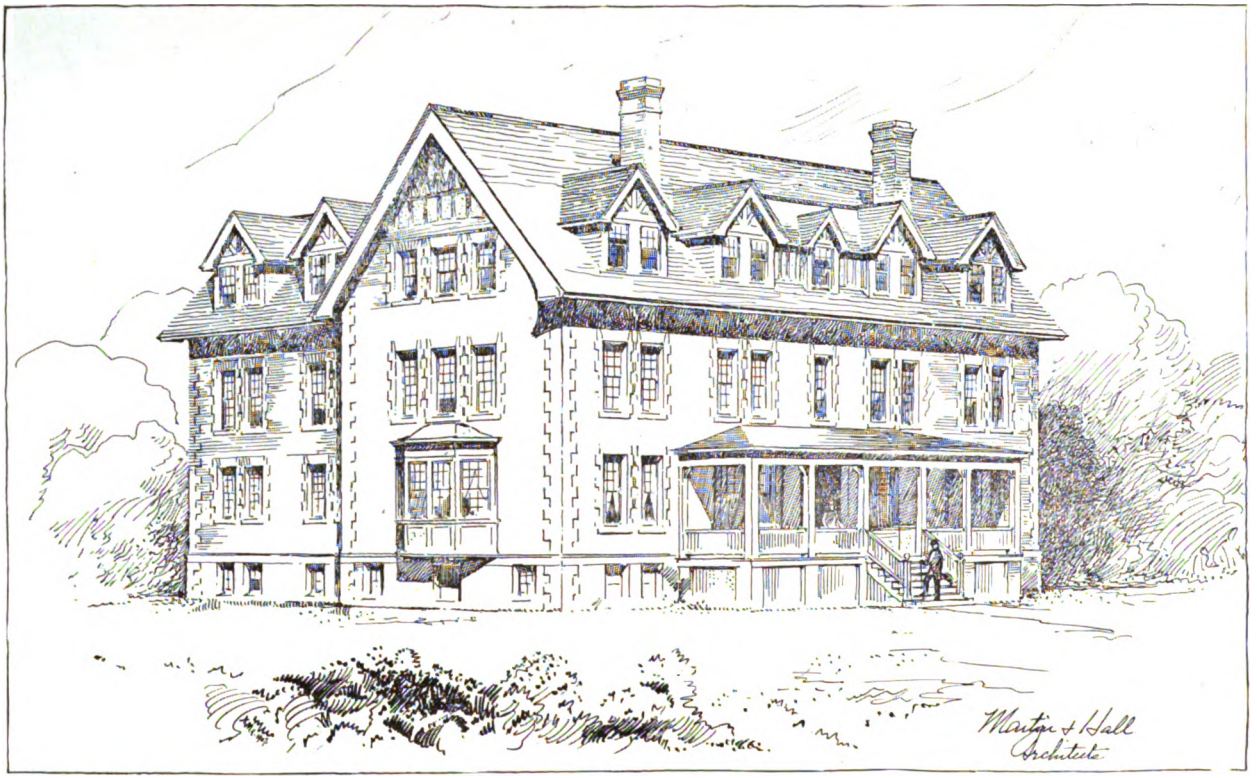

NEW COTTAGE BUILDING, OAKLAWN SCHOOL, IN PROCESS OF CONSTRUCTION.

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The statistics of the Providence County Jail for the year 1906 are as follows:

	Males.	*Females.*	*Total.*
Number in Jail, January 1, 1906	268	26	294
" committed during the year	1492	119	1611
" escaped returned	4	0	4
" discharged during the year	1436	129	1565
" transferred to Sockanosset School	23	0	23
" " to H. of C.	1	0	1
" escaped during the year	5	0	5
" sentenced to State Prison	30	0	30
" transferred to State Hospital	1	0	1
" died	1	0	1
" in Jail January 1, 1907	267	16	283

State Prison men only:

In Prison, January 1, 1906	144	Jan. 1, 1907	119
Committed in 1905	56	In 1906	45
Average number in 1905	161	In 1906	123
Maximum number in 1905	179	In 1906	146
Minimum number in 1905	144	In 1906	109

Providence County Jail men only:

In Jail, Jan. 1, 1906	268	Jan. 1, 1907	267

Committed in 1905:

By the State	1176	In 1906	1166
By the City of Providence	14	In 1906	22
By other cities and towns	200	In 1906	225
By United States and debtors	68	In 1906	83
Total	1458	Total	1496
Average number in 1905	256	In 1906	250
Maximum number in 1905	294	In 1906	296
Minimum number in 1905	207	In 1906	258

The Warden reports the following crops raised:

Asparagus	327 lbs.	Beets, mangle-wurtzle	1212 bush.
Apples, 1st quality	109½ bush.	Beets, long red	120 bush.
Apples, 2d quality	75 bush.	Beet greens	97½ bush.
Beef	1700 lbs.	Beans, string	11 bush.
Beets, turnip	360 bush.		

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Beans, shell	15 bush.	Melons, musk	145 doz.
Blackberries	128 qts.	Melons, water	500
Corn, sweet	1547 doz.	Onions	559 bush.
Corn, in ears	64 bush.	Potatoes	1589 bush.
Cucumbers	848 doz.	Pumpkins	6 tons.
Cabbage	148,395 lbs.	Pears	12 bush.
Currants	1 qt.	Peaches	3 bush.
Carrots	468 bush.	Peppers	4¼ bush.
Celery	1300 hds.	Peas, green	52⅛ bush.
Chicken	646 lbs.	Pork	8981 lbs.
Ducks	57 lbs.	Parsnips	200 bush.
Eggs, ducks'	50 doz.	Radishes	41 doz.
Eggs, hens'	1583¾ doz.	Rareripes	68 doz.
Fowls	888¼ lbs.	Raspberries	76 qts.
Fodder, oat	4½ tons.	Rhubarb	130 lbs.
Fodder, corn green	13 tons.	Spinach	139 bush.
Fodder, corn, dry	7 tons.	Strawberries	397 qts.
Fodder, millet	3 tons.	Squash, summer	11 doz.
Fodder, beets green	3 tons	Squash, winter	3206 lbs.
Fodder, cabbage leaves	14 tons.	Straw, rye	40 tons.
Hay	3 tons.	Tomatoes	229 bush.
Lettuce	68 doz.	Turnips, round	60 bush.
Milk	22,483 qts.	Turnips, French & ruta baga	279 bush.
		Veal	734½ lbs.

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SOCKANOSSET SCHOOL FOR BOYS.

Superintendent: MR. JAMES H. EASTMAN.

Deputy Supt. MR. ELMER BUTTERFIELD. (Up to December 18, 1906.)

The number of boys at the Sockanosset School decreased during the year 1906 from 345 at the beginning to 338 at the close. The daily average number was 359, fifteen more than in 1905.

The number of commitments was 447.

Mr. Eastman reports the following;

"The methods of instruction obtaining in the trades' school will have to be modified somewhat, making the institution more of an industrial training-school than in years past. The tendency of late is to a more rapid change in the population of the School. The average time of detention is gradually being reduced. While it ought not to be so, the fact remains as stated. A boy, to get the full benefit of trades' instruction, it has been thought, should remain in the School at least two years. Each boy taking up a trade has expressed a willingness to remain that length of time, and longer if necessary, to get the full benefit. There has been no difficulty experienced in getting places in the best shops or manufacturing concerns for boys trained at the School. While persuing their trades' instruction, the boys are attending day-school and getting wise in book knowledge. The trades' instructors are revising their courses to meet the changed conditions above suggested."

"The movement in the population of the School for the year past has been as follows:

Awaiting trial	179 boys
Serving jail sentence	22 "
Commited for minority	191 "
" for two years	50 "
" for three years	3 "

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Committed for five years	2 boys
Total	447 "
Released "	454 "

"We believe there are few, if any, schools of like character where so many have come and gone throughout the year. We believe all regular commitments to the Sockanosset School should be for minority, unless sooner released by the Board."

"The foregoing is the consensus of opinion expressed at all Conferences of Charities and Corrections. Short sentences are deprecated as injurious to both the boys and the discipline of the School. The School should be considered a place for education and training, not a place for temporary detention. Most of the boys have been denied such opportunities heretofore, and should be kept long enough to get full benefits. The Sockanosset School is an educational institution, and not a prison. Its instructors are persons of trained ability, and best qualified to say when a boy is well advanced to act for himself. It is for a boy's best interest that he should remain until he has acquired the needed training, and for society's interest also."

"Under present arrangements, when a boy has completed all the requirements, the parent or guardian is notified on a prepared blank, and given to understand that each boy remains under the control of the Board of State Charities and Corrections until his sentence expires, and that he may be returned at any time, without re-commitment, for any wrong doing or failure to comply with any of the conditions of parole, which are as follows:—"

1st:—He must have suitable and constant employment or must attend school regularly.

2nd:—He must send to the Superintendent, in January, April, July and October, of each year until he becomes of age, a report giving truthful answers to questions as to conduct and employment. Blanks for these reports will be sent by the Superintendent at proper times. The reports must invariably include a statement signed by the boy's employer or guardian,

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STATE HOSPITAL FOR THE INSANE.—CONVALESCENT WARD (FEMALE).

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certifying to the truth of the same. It is the duty of parents or guardians to report promptly by letter any wrong-doing on the part of paroled boys. The Superintendent of the institution has full authority to return them to the institution or to take such other action as he may consider wise.

3rd:—If you can furnish for him a good home and if you will see to it that the above conditions of parole are complied with, sign the enclosed blank and forward the same and he will be sent home.

The parents return the following answer:

I fully understand the conditions under which it is proposed to release.....from the Sockanosset School, and I faithfully promise to do my part in fulfilling the same.

(Signed) .....

SCHOOL OF LETTERS.

"The school of letters has gone on uninterruptedly during the past year. The teachers are granted two week's vacation, all going at the same time. The boys are given that time for extra play as a vacation from school."

"One teacher left during the year, and her place has been satisfactorily filled by a teacher from one of the Providence public schools. No changes have been made in text books. Those in use are up to a very late date."

"The danger from the use of alcoholic drinks and cigarettes is a subject which appeals to us and to which we have given much attention. We have text books upon these subjects in all the schools. In addition to the foregoing we have a well selected library of 1500 volumes, which is accessible to all the boys, many of the leading periodicals also, and a copy of our own little school paper, the Howard Times, is given to every boy, which, after reading, he sends to his home."

"The following is a list of periodicals: 'Scientific American,' 'Blacksmith & Wheelwright,' 'Youth's Companion—seven copies,' 'Harper's' Weekly,' 'Harper's' Monthly,' 'Cen-

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tury,' 'Review of Reviews,' 'St. Nicholas,' 'New England Magazine,' 'New England Homestead,' 'Mc Clure's,' 'Power,' 'Carpenter & Builder,' 'The Independent,' 'Machinist,' 'Inland Printer.'"

"For the teachers' use: 'American Primary Teacher,' 'Popular Educator,' 'Normal Instructor,' 'Primary Educator,' 'World's Events.'"

MILITARY.

"The Sockanosset Battalion has been kept at a high state of discipline. Capt. Malachy Kelley, who is connected with the Militia of the State, served as military instructor last year, as formerly. The Battalion was reviewed by Brigadier General Herbert S. Tanner of our State Militia and his staff June 28, 1906. They witnessed a dress-parade and prize-drill also. Gold and silver medals were awarded."

"The military feature is one of importance, as it is an excellent aid to both discipline and physical development. An esprit de corps arises out of this feature which is not readily reached through any other agency. Boys like the military and willingly drop their games at the bugle call for drill and are emulative of promotion."

"Closely associated with the military is the Sockanosset Cadet Band. There are about forty cadets under instruction all the while, so as to keep the organization up to the full complement of 26 pieces. The band undergoes frequent changes on account of discharges from having earned parole and otherwise. Because of the many changes it seems remarkable that the instructor gets along as well as he does and that the playing of the band is so commendable. Their services would be in constant demand if encouraged, but this is not wise. The board permitted their participating in the Decoration Day exercises in Providence and in Cranston, and in the closing exercises of the summer play ground season at Roger Williams Park, and also allowed them to give an evening concert at Phenix. The compensation received was volun-

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tary and amounted to a sufficient sum to keep the band supplied with music."

"The band needs many new instruments. That fact has been suggested for several years. I would again recommend that $500 be asked for for this purpose. The old instruments will be satisfactory for the beginners in their practice."

AFTER-CARE.

"The after-care of the boy is an important subject for our still further consideration. He should remain at the School until fitted to earn his living. When that time arrives, some one should find a place for him to work, and look after and encourage him in it until he can care for himself. This has been a weak feature in our endeavors. Boys have relapsed, some of them, from a good to a bad condition, from need of more efficient after-care. This should be the work of some instructor or officer of the School, under the direction of the Superintendent, rather than of a stranger,—one who was acquainted with the boy while an inmate. This method would tend to keep alive an instructor's, or teacher's, interest in a boy trained under him and solicitude for the future success of all those going from the School of his class. He might find places and, if one did not prove satisfactory, shift to another, or return an occasional boy to the School for a while longer. I am sure his after-care would result most favorably and the boys would respond gratefully. The homes and places provided for the majority are not many miles distant from the School, and the expenses of travelling would not be great. Desiring to make a good trial, to take an advanced step in the matter, I ask the Board's favoring advice and consent."

CHRISTMAS.

"The Christmas observances were of the usual brightness, as in the past years. A well-known member of the Board, as the boys' Santa Claus, again remembered each one with a "gift in hand," and in every instance it was a gift of his own

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initiative. There were books of history, biography, poetry, story and mechanics, and instruction books, Bibles, and prayer books; and skates, sleds, drawing instruments, tools and knives, not forgetting that seven of the boys wanted razors, which they got."

VISIT TO KEITH'S THEATRE.

"An invitation was extended to the boys to visit Keith's Theatre, and accepted December 20th. Five cars were chartered to convey them with their officers and teachers to and from Providence. The expenses were defrayed from a fund contributed by another prominent member of the Board. The boys were happy; not one was left at home, and they made a fine appearance, evoking favorable comment from citizens in general. On leaving the theatre the boys were given apples, the gift of the Outlet Company. It was raining, and Union and Weybosset Sts. were crowded with pedestrians and vehicles, the time involved in giving out the apples making the streets still more congested. The boys conducted themselves in a mannerly way and with soldierly bearing. The cars for the return trip were on the 'double quick' and the return journey was made to Sockanosset Corner on time. The cadets marched up to the School in the dark; on arriving there they found a plate of hot and palatable Irish stew awaiting them. Having had an early lunch, this preparation was well received at about 6:45 p. m. All in all, it was a triumphant occasion; not a ruction or occurrence that could be considered worthy of criticism arose, but there was much to commend. The proprietor of the theatre is deserving of sincere thanks."

HEALTH.

"The condition of health at one period during the warm season was somewhat threatening. Several cases of typhoid fever appeared, but no deaths occurred, owing to good nursing and medical care."

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"THE EXHIBIT MADE BY TH
SCHOOL FOR BOYS AND T
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BIRDS-EYE VIEW OF STATE HOSPITAL FOR THE INSANE.

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The following descriptions, taken from the papers received from the Louisiana Purchase Commission, include the medal represented above, the medal given to the Oaklawn School for Girls and the Grand Prize given to the Board. There is a picture of the last named in the report of 1905:

"In the composition of the obverse of the medal are shown two figures, one of which, Columbia, tall and stately, is about to envelop the youthful maiden by her side, typifying the Louisiana Territory in the flag of the stars and stripes, thus receiving her into the sisterhood of States. The other figure is depicted in the act of divesting herself of the cloak of France, symbolized in the emblem of Napoleon, the busy bee, embroidered thereon. In the background is shown the rising sun, the dawn of a new era of progress to the nation."

"The reverse of the medal shows an architectural tablet bearing an inscription giving the grade of the medal. Below the tablet are two dolphins symbolizing our eastern and western boundaries, the whole surmounted by an American Eagle, spreading his wings from Ocean to Ocean."

"On the Gold Medal there are three distinct corners, each containing a wreath encircling a monogram or emblem, and each of these wreaths is surrounded by fourteen stars, representing the Louisiana Purchase States and Territories. On the Grand Prize design there is the same number of stars in the upper field of the shield, and there are thirteen bars in the lower field, representing the original States. On the design of the Silver Medal the artist has used the cross of the Order of Saint Louis."

"The Medal was designed by Adolph A. Weinman. The design was approved by a committee composed of J. Q. A. Ward, Daniel C. French and Augustus St. Gaudens."

"The dies were engraved and the medals struck by the United States Government Mint at Philadelphia. The alloy for the medals was made especially for the Exposition after samples were submitted and passed upon by expert medalists."

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FARM AND GARDEN.

The following table shows the quantities of farm and garden produce raised at the School by the larger boys:

Apples, hand picked	63½	bbls.	Hay	27	tons.
Apples, windfalls	197	bush.	Milk	37669	qts.
Asparagus	176	lbs.	Melons, musk	1563	
Beans, Lima	4¼	bush.	Melons, water	454	
Beans, string	82¼	bush.	Onions	202½	bush.
Beans, shell	2¼	bush.	Oat fodder	4	tons.
Beef	2865	lbs.	Pork	6011	lbs.
Beets, table	84½	bush.	Parsnips	22¼	bush.
Beets, small	24	doz.	Pears	11½	bush.
Beets, cattle	2276	bush.	Peaches	34½	bush.
Beets, green	3	bbls.	Potatoes	2108	bush.
Cauliflower	141	hds.	Peas, green	40	bush.
Corn, fodder	38	tons.	Poultry	1786	lbs.
Corn, pop	21	bush.	Pumpkins	185	
Corn, sweet	1157½	doz.	Rareripes	940	doz.
Cucumbers	275½	bush.	Radishes	176	doz.
Carrots	17¼	bush.	Rhubarb	267	lbs.
Cabbage	3019	hds	Squashes	362	tons
Celery, (bunches)	502		Strawberries	1515	qts.
Dandelions	15	bbls.	Rye straw	8	tons.
Eggs	2941½	doz.	Turnips	42½	bush.
Egg-Plants	79		Tomatoes, ripe	76	bush.
Grapes	12½	bush.	Tomatoes, green	8¼	bush.

THE SCHOOL OF TRADES.

The daily numbers receiving instruction in trades, as well as the totals for the year, are as follows:

	Daily Average.	*Whole Number During the Year.*
Printing Department	11	26
Blacksmith do	11	18
Machine do	14	26
Carpenter do	10	22
Mason do	7	15
Shoe do	12	24
Engineering do	6	13
Tailoring do	24	40

The statistics of the year are as follows:

Number in the School, January 1, 1906	345
Number committed by Courts	387

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Number admitted by Board of State Charities & Corrections (Sec. 7, Chapter 290, General Laws of R. I.)	5	
Number returned or retaken, having escaped	5	
Number returned from places, surrendered by bail, etc	28	
Number transferred from Jail by Board of S. C. & C	22	447
		792
Number discharged	392	
Number escaped and not returned	13	
Number escaped and returned	5	
Number returned to Jail	23	
Number released on bail	21	454
Number remaining January 1, 1907		338

The offences for which boys were committed from the Courts were: arson, 1; assault, 6; cruelty to animals, 1; defacing building, 9; defacing property. 1; disorderly conduct on the street, 10; driving off horse and carriage, 3; embezzlement, 1; house breaking, 2; receiving stolen money or goods, 8; shop breaking, 11; theft, 64; truancy, 63; vagrancy, 33; 179 were committed to await trial.

The average numbers in the School were:

In 1883, approximately	153
In 1884, approximately	171
In 1885, from daily record	156
In 1886, from daily record	179
In 1887, from daily record	203
In 1888, from daily record	200
In 1889, from daily record	204
In 1890, from daily record	211
In 1891, from daily record	171
In 1892, from daily record	192
In 1893, from daily record	230
In 1894, from daily record	247
In 1895, from daily record	249
In 1896, from daily record	271
In 1897, from daily record	301
In 1898, from daily record	350
In 1899, from daily record	352
In 1900, from daily record	335
In 1901, from daily record	356

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In 1902, from daily record	362
In 1903, from daily record	353
In 1904, from daily record	344
In 1905, from daily record	340
In 1906, from daily record	359

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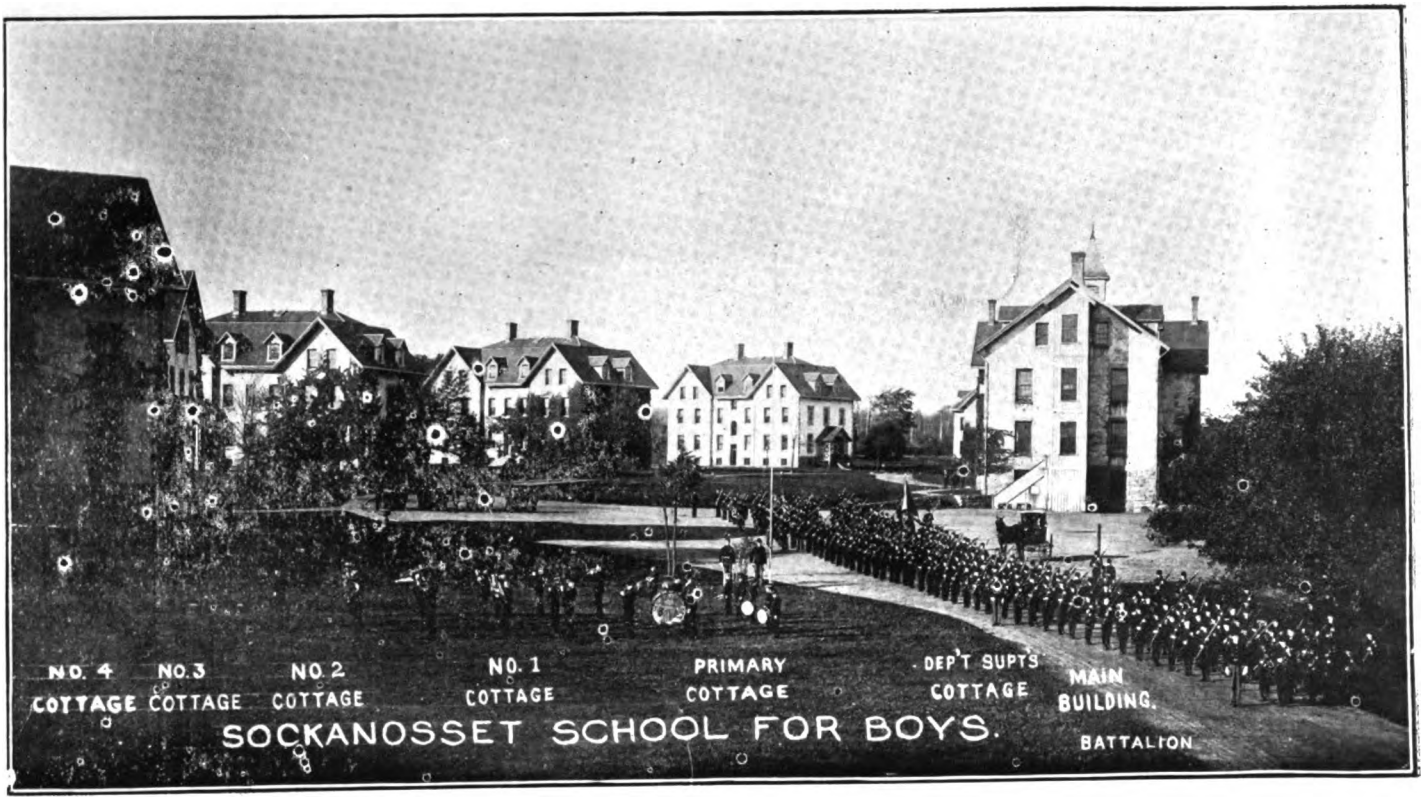

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OAKLAWN SCHOOL FOR GIRLS.

Superintendent: MR. JAMES H. EASTMAN.

Deputy Supt: MRS. CLARA E. FORBUSH.

The statistics of the year are as follows:

Remaining in the School January 1, 1906		48
Committed by the Courts during the year	14	
Admitted by the Board of State Charities and Corrections	2	
Returned from places	11	
Returned from Workhouse and House of Correction	2	
Committed awaiting trial	7	
Remanded by the Courts	2	38
		86
Discharged on probation to go home	16	
Discharged on probation to live in families	13	
Removed to Workhouse and House of Correction	2	
Removed to Almshouse	2	
Released for trial	7	
Released on Habeas Corpus (to Court as witnesses)	2	
Discharged on expiration of sentence	1	43
Remaining in the School January 1, 1907		43

Average number in 1882 (six months)	22
" " " 1883	31
" " " 1884	39
" " " 1885 (daily average)	35
" " " 1886 " "	25
" " " 1887 " "	30
" " " 1888 " "	34
" " " 1889 " "	37.5
" " " 1890 " "	33
" " " 1891 " "	28.7
" " " 1892 " "	29.9
" " " 1893 " "	21.9
" " " 1894 " "	26.3
" " " 1895 " "	26.6
" " " 1896 " "	34.2
" " " 1897 " "	40.4
" " " 1898 " "	51.4
" " " 1899 " "	54
" " " 1900 " "	44
" " " 1901 " "	45
" " " 1902 " "	49.1
" " " 1903 " "	46.5
" " " 1904 " "	46.5
" " " 1905 " "	46
" " " 1906 " "	49

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Fourteen girls were committed to the Oaklawn School by the Courts in 1906. This number is nine less than in 1905. The number remaining is five less than one year ago. The average number was forty-nine.

Two were committed as vagrants; one for assault; five as lewd and wanton persons; one for truancy; three for disorderly conduct; two for theft; eleven were returned from places; seven were committed awaiting trial; two were remanded by the Courts; two were returned from State Workhouse and House of Correction; one was admitted from State Almshouse by the Board, and one was admitted by the Board, upon the request of the State Home and School.

The ages at the time of commitment or admission were; one, eight years; one, nine years; one, eleven years; two, twelve years; one, thirteen years; four, fourteen years; two, fifteen years; two, sixteen years; two, seventeen years.

Mr. James H. Eastman, Superintendent of the School, contributes the following report made to him by Mrs. Clara F. Forbush, Deputy Superintendent:

"The work of the School the past year has been quite like that of previous years. The employment of an additional teacher was an advanced step and greater progress in the schoolroom has been the result. Miss Agnes B. McNaughton has had charge of the girls in physical culture lessons; special drill is given once a week and a period of fifteen minutes each morning before breakfast is devoted to physical exercises. Miss Agnes C. Smith gives instruction in singing and reading music, using "The Natural Course in Music," and fifteen minutes each day at the beginning of the school session have been given to this work. The girls have made fairly good progress."

"The conduct of the girls has been generally good and a spirit of subordination has been quite general. The individual girls of an excitable nature have had their tantrums, but they were of no serious moment."

"The general health of the girls has been good."

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"Early in the spring, Mrs. Gustave Radeke, of the Women's Advisory Board, donated flower seeds and plants for the girls' flower beds. A strip of ground on the lawn in front of the school building was prepared and each girl given a portion as her own. They enjoyed working at the plants and were well rewarded with abundant bloom. The flowers were a source of pleasure to them throughout the season. In the fall, Mrs. Radeke also sent bulbs which were planted for spring blooming."

"On the second Sunday morning of each month, Mass is celebrated by the Rev. Father Buckley. The Sisters of Mercy visited the Catholic girls twice a month, and this is a great help to them. October 21st, a class of seven were confirmed at St. Ann's Church in Cranston, with a large class of others of their age residing in that Parish."

"The usual force at the School remains the same as last year with one exception: Miss Maude S. Howard, a graduate of the Framingham Normal School, Mary Hemenway Department of Household Arts, was placed in charge of the culinary department, and is having very good success."

"As usual, the girls attend Sunday morning exercises at the State Hospital for the Insane. In the afternoon, Sunday School is held in the school-room. Chaplain Ewer addresses the girls at the close. Mrs. Ewer has also spoken several times and her talks have been helpful."

"The holidays have been observed and appropriate entertainments have been given throughout the year. Several instructive lectures from friends outside have also been given. At Christmas time the girls each received a present from a friend in Providence whom they call "Santa Claus," and also from the "Thimble Club" of Providence. The Catholic girls received presents from the Sisters of Mercy."

"Work on the new cottage was begun in the summer, but had to be suspended during the cold weather. We hope to see the work resumed as soon as spring opens, and the cottage finished, so that our younger girls can be separated from the older."

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"The vegetable garden has been taken care of by the girls after the first hoeing by the State Farm forces, and eighteen girls have been thus employed at times. Four other girls worked about the grounds during the entire season. Over two hundred chickens were raised, the girls caring for them."

Report of Produce raised at the Oaklawn School for the year 1906:—

Apples	3½	bush.	Onions	1½	bush.
Asparagus	10½	lbs.	Peaches	6½	bush.
Beets	10	bush.	Peas	7¼	bush.
Beans (string)	11½	bush.	Peppers	¾	bush.
Blackberries	108	qts.	Potatoes	7¼	bush.
Cabbage	670	hds.	Peas	8	bush.
Cauliflower	8	hds.	Radishes	91½	doz.
Celery	279	bun.	Raspberries	93	qts.
Currants	13	qts.	Rhubarb	87½	lbs.
Cucumbers	19¾	bush.	Spinach	6½	bush.
Corn (sweet)	78½	doz.	Strawberries	496	qts.
Dandelions	15½	bush.	Squash (Hubbard)	157	
Gooseberries	16	qts.	Sunflower seed	3½	bush.
Lettuce	189	hds.	Tomatoes	12	bush.
Melons (water)	95		Turnips	13¼	bush.
Melons (musk)	374				

"The girls sent out the past year, indeed for the past ten years, are almost invariably doing well; one only has been committed to the Workhouse or Jail. This record gives us courage for the future."

Mr Eastman adds the following:—

"In the foregoing report, Mrs. Forbush has omitted to speak of the attempted escape of three girls."

"On the morning of February 22nd, while the girls were at recreation out of doors, a girl seventeen years of age, committed two days before, flew down the vista in an effort to escape. All the larger girls started in pursuit, and caught up with her before reaching Oaklawn Village. She fell, exhausted by her efforts, while her pursuers seemed fresh and fully ready for what might happen. The runaway, after getting her breath, made

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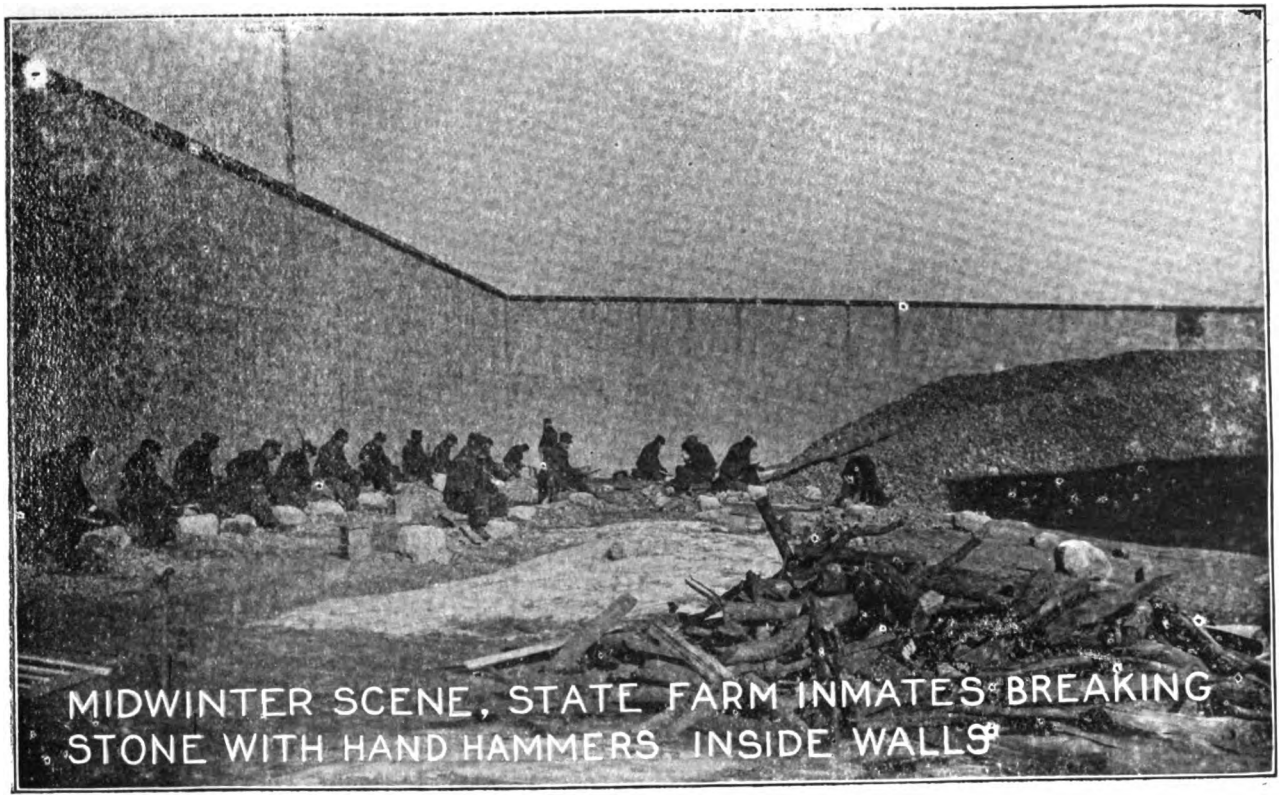

MIDWINTER SCENE, STATE FARM INMATES BREAKING STONE WITH HAND HAMMERS INSIDE WALLS

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a desperate resistance, but to no purpose; she was picked up and carried bodily up the hill through the south gate into the house and laid on the floor by the girls."

"Again, on Oct. 15th, two new girls, at about the same hour of the morning, made a similar attempt, getting further away from the School than did the other. They ran around neighboring buildings, jumped walls and fences and hid in the tall weeds and grass, to be captured by the girls and triumphantly returned."

"These are splended illustrations of the spirit obtaining at the Oaklawn School, and are highly creditable to the girls and the management thereof."

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NEWPORT COUNTY JAIL.

To the Board of State Charities and Corrections:

I have the honor to hand you herewith a report of the commitments and disposal of cases at the Newport County Jail for the year 1906. I visited the Jail during the year and found everything in good condition.

	Men.	*Women.*	*Total.*
Remaining in Jail, January 1, 1906	1	2	3
Committed during the year	271	16	287
	272	18	290
Discharged during the year	271	18	289
Remaining in Jail, January 1, 1907	1	0	1

Offences.	*No.*
Assault	37
Bastardy	1
Breaking and entering	27
Begging	9
Burglary	2
Being a common drunkard	5
Being an idle person	6
Being lewd and wanton	2
Being a railer and brawler	3
Carnal knowledge	2
Cruelty to animals	2
Debt	7
Drunkenness	112
Having game birds out of season	6
Larceny	41
Malicious mischief	7
Non-support of family	4
Peddling without license	1
Revelling	5
Selling intoxicating liquors	2
Sleeping out	3
Vagrancy	2
	286
Confined for safe-keeping	1
	287

Disposal of Cases.	*No.*
Died	1
Discharged, fine and costs remitted	70
Discharged, fine and costs paid	30
Discharged, sentence served and costs paid	4
Discharged, sentence served, costs remitted	13
Discharged, fine paid	1
Released on bail	25
Released on Habeas Corpus	85
Released by order plaintiff's attorney	7
Sentenced to Providence County Jail	40
Sentenced to Workhouse and House of Correction	10
Sentenced to Reform School	1
	287

Respectfully submitted,

JOHN J. WATSON, JR.

JAMESTOWN, R. I., January 1, 1907.

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WASHINGTON COUNTY JAIL.

To the Board of State Charities and Corrections:

I inspected the Washington County Jail during the year, and found everything in good condition.

The statistics of the Jail for 1906 furnished by the Jailer are as follows:

	Men.	*Women.*	*Total.*
Remaining in Jail, January 1, 1906	1	0	1
Committed during the year	72	1	73
	73	1	74
Discharged during the year	71	1	72
Remaining in Jail, January 1, 1907	2	0	2

Offences.	*No.*
Assault	4
Assault with dangerous weapon	2
Assault with attempt to rape	1
Being a commong drunkard	9
Being a vagrant	5
Breaking and entering	4
Bastardy	1
Carrying concealed weapons	5
Drunkenness	28
Fugitive from justice	4
Keeping common nuisance	2
Liquor, illegal keeping	2
Larceny	4
Murder	1
Non-support of family	1
	73
Remaining in Jail January 1, 1906	1
	74

Disposal of Cases.	*No.*
Committed to Providence County Jail	6
Committed to State Workhouse and H. of C	4
Released on bail	5
Released on expiration of sentence	5
Released by order of Town Council of Narragansett	3
Released on Habeas Corpus	49
	72
Remaining in Jail Jan. 1, 1907	2
	74

Respectfully submitted,

ROBERT F. RODMAN.

ALLENTON, R. I., January, 1907.

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KENT COUNTY JAIL.

To the Board of State Charities and Corrections:

I have visited the Kent County Jail, according to the requirements of the law, and found everything satisfactory.

I would suggest again, as I have in several reports of past years, the purchase, by the State, of a strip of land now owned by the Electric Light Company. One side of the Jail is very dark because the sheds of said company stand so close to it.

The statistics for the year, as furnished by the Jailer, are as follows.

	Men.	*Women.*	*Total.*
Remaining in Jail, January 1, 1906	1	0	1
Committed during the year	98	6	104
	99	6	105
Discharged during the year	95	6	101
Remaining in Jail, January 1, 1907	4	0	4

Offences.	*No.*
Assault with dangerous weapon	5
Assault	18
Adultery	4
Bastardy	2
Breaking and entering	6
Being a vagrant	3
Being a tramp	1
Being a common drunkard	3
Carrying concealed weapons	1
Carnal knowledge	2
Drunkenness	34
Embezzlement	2
Exceeding the automobile speed limit	2
Indecent exposure	1
Malicious mischief	1
Murder	1
No visible means of support	1
Non-support of family	6
Larceny	7
Robbery	4
	104
Remaining in Jail, January 1, 1906	1
	105

Disposal of Cases.	*No.*
Committed to State Prison	3
Committed to Providence County Jail	4
Discharged, fine and costs paid	10
Released on bail	7
Released, costs remitted	6
Released on writ of Habeas Corpus	71
	101
Remaining in Jail, January 1, 1907	4
	105

Respectfully submitted,

JAMES F. McCUSKER.

PONTIAC, R. I., January, 1907.

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BRISTOL COUNTY JAIL.

To the Board of State Charities and Corrections:

I have inspected the Bristol County Jail, and would report that there are many repairs needed. It seems almost imperative that they should be made at once. The statistics for the year 1906, as furnished by the Jailer, are as follows:

	Men.	*Women.*	*Total.*
Remaining in Jail, January 1, 1906	0	0	0
Committed during the year	165	7	172
Discharged during the year	165	7	172
	165	7	172
Remaining in Jail, January 1, 1907	0	0	0

Offences.	*No.*
Assault	12
Assault with dangerous weapon	6
Abandoning wife and children.	1
Breaking and entering in day-time	3
Breaking and entering in night-time	5
Being a common drunkard	9
Being a railer and brawler	1
Being a disorderly person	1
Being a disobedient person	1
Being an idle person	1
Being a suspicious person	14
Carrying a concealed weapon	3
Drunkenness	58
Larceny	12
Non-support of wife	2
Neglecting all lawful business	1
Receiving stolen goods	1
Revelling	11
Vagrancy	16
Wilfully taking and using a horse and carriage not his own	4

Disposal of Cases.	*No.*
By writ of Habeas Corpus	143
By town of Bristol	27
By plaintiff's attorney	1
Civil bail given	1
	172

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BRISTOL COUNTY JAIL.—*Continued.*

Wilfully taking and using a boat not his own	2
	164
Insane persons committed	2
Committed for safe-keeping	4
Civil commitments	2
	172

Respectfully submitted,

HARRY H. SHEPARD.

BRISTOL, R. I., January, 1907.

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FINANCES.

RESOURCES.

Appropriation for Maintenance of State Institutions, 1906	$310,000 00	
Less balance undrawn December 31, 1906	13,654 93	$296,345 07
Appropriation for Purchase of Land, April 20, 1906, available, January 1, 1907	2,100 00	
Balance of Appropriation for Purchase of Land available, January 1, 1906	258 13	2,358 13
Appropriation for Construction, at State Institutions, April 16, 1906		100,000 00
Balance of Appropriation for Construction, at State Hospital for Insane, available, January 1, 1906		968 91
Balance of Appropriation for Industrial Training, at Sockanosset School, available, January 1, 1906		1,361 68
Income of State Hospital for Insane:		
From board of inmates	$18,848 07	
" sale of produce	915 13	
" sale of junk	239 31	
" sale of sundries	256 10	20,258 61
Income of State Farm:		
From board of inmates	6,192 55	
" sale of produce	2,281 03	
" sale of junk	151 09	
" sale of sundries	160 96	
" labor	99 22	8,884 85
Income of Prison and Jail (including bills due for labor and board, December 31, 1906):		
From labor of inmates	21,210 78	
" board of inmates	3,996 40	
" Jail fees and bonds	342 20	
" sale of produce	1,006 97	
" sale of junk	441 17	
" sale of souvenirs	425 10	
" sale of sundries	10 50	
" sale of crushed stone	42 77	
" rent	348 00	
" interest	10 58	27,734 47
Income of Sockanosset School:		
From Printing department	147 16	
" labor in shops	97 86	
" sale of produce	310 48	
" sale of sundries	39 16	
" board	74 14	668 26
Indebtedness of sundry parties to Prison and Jail, January 1, 1906		2,382 66
Due from credits		12 27
Coal on hand, undivided, January 1, 1906		5,870 34
Interest on deposits in 1906		28 47
		$466,823 71

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EXPENDITURES.

Construction:			
Ice House, State Hospital for Insane		$1,159 21	
Conduit, State Hospital for Insane		375 51	
Shed, State Hospital for Insane, (previously $596.38; total $642.26)		46 88	
Alteration of Quarantine Hospital, State Farm		2,496 68	
Alteration of Officers' Quarters, State Farm, (previously $1,918.12; total $1,922.38)		4 26	
Repairs on Chaplain's House		60 41	
Shed, State Prison		1,215 25	
Greenhouse, Sockanosset School, (previously $489.88; total $1,447.99)		958 16	
Cottage No. 2, Oaklawn School		1,327 30	$7,583 66
Current expenses of State Hospital for Insane:			
Subsistence:			
Meat	$6,609 83		
Fish	975 64		
Butter	2,041 47		
Butterine	1,340 77		
Cheese	500 10		
Tea	1,092 66		
Coffee	268 19		
Sugar	2,015 54		
Molasses	269 22		
Soap	394 14		
Tobacco	489 15		
Flour	5,182 15		
Crackers	254 81		
Beans	797 92		
Meal	288 62		
Rolled Oats	123 60		
Sundries	8,836 69	$31,980 50	
Farm expenses:			
Manure	737 42		
Fertilizer	350 00		
Ashes	151 00		
Grain	2,775 31		
Seeds	450 30		
Sundries	156 36	4,620 39	
Farm stock and tools:			
Stock	605 00		
Farm tools, etc.	187 31		
Sundries	13 31	805 62	
Salaries		36,184 68	
Medical supplies		1,569 60	
Clothing and bedding		9,944 90	
Furniture		3,252 34	
Fuel		11,608 37	
Lights		2,370 28	
Repairs and improvements		2,836 99	
Postage		101 50	
Stationery		169 86	
Books, periodicals, etc.		50 87	
Telephones, electric and fire apparatus		200 94	

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UNIV. OF MICH.

VIEW OF CORRIDOR, STATE PRISON.

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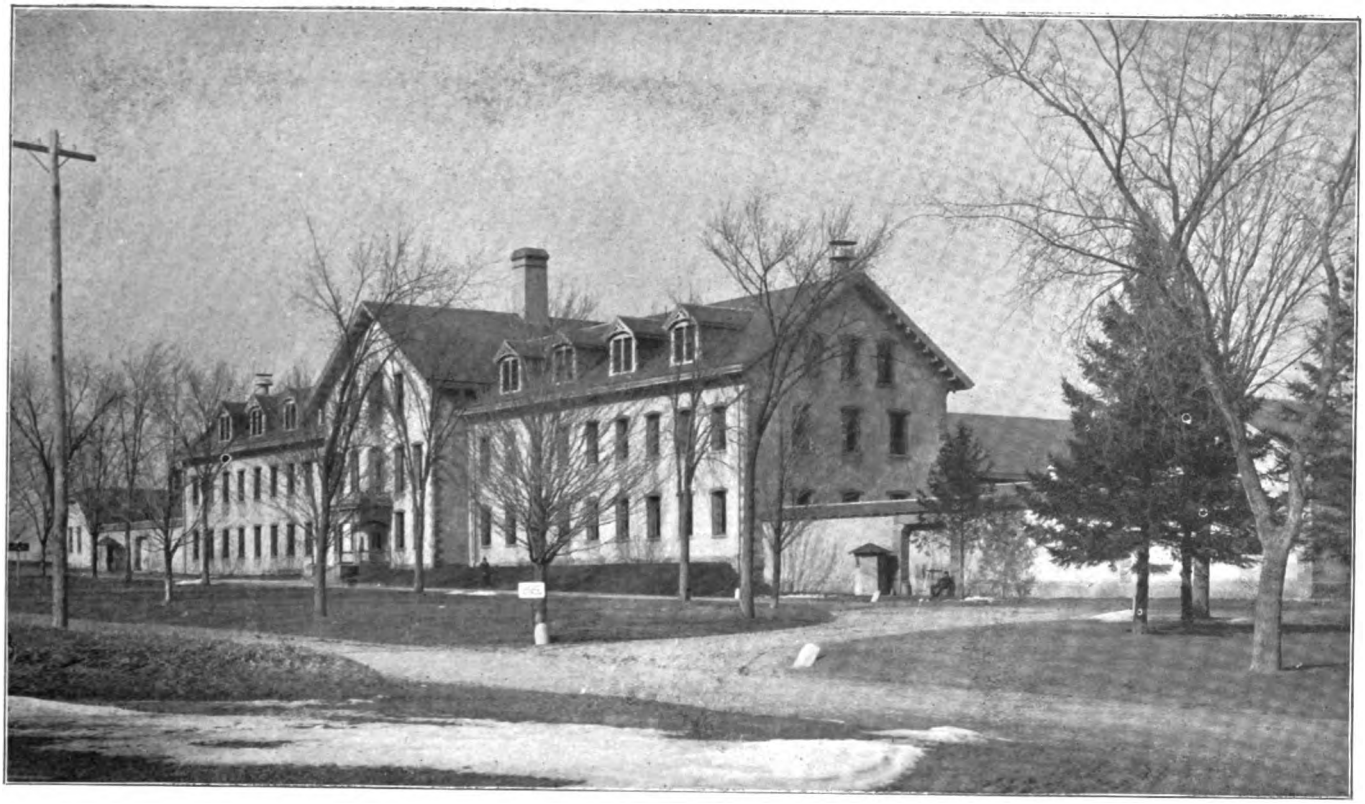

WORKHOUSE AND HOUSE OF CORRECTION.

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Expenses returning escaped inmates		$7 40	
Transportation of inmates		14 01	
Miscellaneous		585 42	
		$106,428 62	
Add amount charged by State Farm		1,005 56	
Add amount charged by Sockanosset School		212 76	
		$107,656 94	
Deduct amount charged to State Farm	$1 60		
Deduct amount charged to Sockanosset School	18 75	20 35	$107,636 59

Current expenses of State Farm:

Subsistence:			
Meat	$6,005 78		
Fish	756 17		
Butter	949 66		
Butterine	1,141 68		
Cheese	451 58		
Tea	782 48		
Coffee	189 62		
Sugar	1,507 68		
Molasses	190 59		
Soap	1,161 29		
Tobacco	719 21		
Flour	9,290 25		
Crackers	285 84		
Beans	468 50		
Meal	254 20		
Rolled oats	90 86		
Sundries	6,218 25	$30,418 48	
Farm expenses:			
Fertilizer	701 00		
Manure	1,405 35		
Grain	3,686 81		
Seeds	511 62		
Sundries	892 37	7,137 15	
Farm stock and tools, etc:			
Stock	1,010 00		
Farm tools, etc.	643 62		
Sundries	130 29	1,783 91	
Salaries		33,768 16	
Medical supplies		2,980 66	
Clothing and bedding		7,455 18	
Furniture		2,070 71	
Fuel		7,407 71	
Lights		1,526 13	
Repairs and improvements		6,911 80	
Postage		110 00	
Stationery		216 58	
Books, periodicals, etc.		17 60	
Telephones, electric and fire apparatus		226 74	
Expenses returning escaped inmates		85 40	
Transportation of inmates		82 96	
Miscellaneous		761 56	
		$102,905 28	

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Add amount charged by Sockanosset School		$149 45	
Add amount charged by State Hospital for Insane		1 60	
		$108 056 28	
Deduct amount charged to the following Institutions:			
State Hospital for Insane	$1,005 56		
State Prison	1,833 43		
Sockanosset School	6,032 56		
Oaklawn School	3,344 62	12,216 17	$90,840 11
Current expenses of State Prison:			
Subsistence:			
Meat	$5,950 41		
Fish	686 54		
Butter	760 57		
Cheese	156 92		
Coffee	78 40		
Tea	57 58		
Sugar	243 32		
Molasses	637 18		
Soap	239 88		
Tobacco	1,055 23		
Flour	2,159 45		
Crackers	42 58		
Beans	446 06		
Meal	689 18		
Rolled oats	193 50		
Sundries	3,529 58	$16,876 26	
Farm expenses:			
Fertilizer	455 34		
Manure	1,888 91		
Grain	1,817 69		
Seeds	308 98		
Sundries	916 50	5,827 42	
Farm stock and tools:			
Stock	784 70		
Tools, etc.	613 15		
Sundries	140 69	1,538 54	
Salaries		26,627 90	
Medical supplies		1,287 80	
Clothing and bedding		3,906 69	
Furniture		980 38	
Fuel		3,852 79	
Lights		1,068 69	
Repairs and improvements		2,808 83	
Postage		183 00	
Stationery		159 27	
Books, periodicals, etc.		52 00	
Telephones, electric and fire apparatus		345 12	
Expenses returning escaped inmates		20 70	
Transportation of inmates		6 60	
Discharge money to inmates		350 00	
Miscellaneous		649 42	
		$65,940 98	
Add amount charged by State Farm		1,833 43	$67,774 36

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Current expenses of Seekonnet School:

Subsistence:			
Meat	$3,043 79		
Fish	424 28		
Butter	772 74		
Butterine	286 97		
Cheese	287 08		
Tea	213 10		
Coffee	126 42		
Sugar	756 75		
Molasses	89 98		
Soap	218 79		
Flour	187 40		
Crackers	188 77		
Beans	339 32		
Meal	20 40		
Rolled oats	21 60		
Sundries	3,480 95	$10,298 29	
Farm expenses:			
Fertilizer	280 00		
Manure	388 48		
Grain	1,556 94		
Seeds	181 84		
Sundries	1,045 88	3,408 09	
Farm stock and tools:			
Stock	175 00		
Farm tools, etc	284 27		
Sundries	22 33	481 60	
Salaries		19,801 89	
Medical supplies		439 91	
Clothing and bedding		9,427 16	
Furniture		1,581 46	
Lights		998 98	
Fuel		3,812 72	
Repairs and improvements		3,567 54	
Postage		180 00	
Stationery		118 06	
Books, periodicals, etc		340 86	
Telephones, electric and fire apparatus		209 55	
Expenses returning escaped inmates		59 50	
Transportation of inmates		108 80	
Printing supplies		368 28	
Miscellaneous		699 72	
		$56,222 41	
Add amount charged by State Farm		6,082 56	
Add amount charged by State Hospital for Insane		18 75	
		$61, 273 72	
Deduct amount charged to State Farm	$149 45		
Deduct amount charged to State Hospital for Insane	212 76	362 21	$60,911 00

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Current expenses of Oaklawn School.

Subsistence	$96 14	
Salaries	2,374 17	
Farm expenses	54 00	
Farm stock and tools	15 01	
Medical supplies	27 00	
Clothing and bedding	388 04	
Furniture	241 85	
Lights	59 78	
Fuel	537 48	
Repairs	140 01	
Postage	20 00	
Stationery	32 48	
Books, periodicals, etc.	24 18	
Telephones	75 00	
Transportation of inmates	16 65	
Miscellaneous	123 13	
	$4,224 92	
Add amount charged by State Farm	3,344 62	$7,569 54

Expenses of the Board.

Traveling expenses:			
James F. McCusker	$50 00		
Philippe Boucher	50 00		
Robert F. Rodman	47 75		
George R. Lawton	25 00		
Walter A. Read	11 12		
Thomas W. Waterman	11 70		
Harry H. Shepard	8 50	$204 07	
Expenses of Philippe Boucher to National Conference of Charities and Corrections Philadelphia, Pa.,	65 50		
Expenses of Charles H. Ewer to same	43 65		
Expenses of James H. Eastman to same	41 34		
Expenses of Andrew J. Wilcox to Prison Congress, Albany, N. Y.	60 00		
Expenses of Charles H. Ewer to same	60 00		
Expenses of Henry A. Jones to same	60 00	$584 56	
Office expenses:			
Postage, stationery, etc	258 89		
Salaries of Secretary and Clerks	6,250 00	6,508 89	$7,043 45

Expenses of removing paupers from the State.

Salaries of Agent and Clerks		3,356 00	
Sundry expenses		2,750 06	6,106 06

Expenses of Probation Work.

Salaries of Officers		3,200 00	
Sundry expenses		682 99	3,882 99

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Dr.

State Treasury, account of appropriation for Construction, at State Hospital for Insane	$968 91	
State Treasury, account of appropriation for Purchase of Land	2,358 13	
State Treasury, account of appropriation for Industrial training, at Sockanosset School	408 52	
State Treasury, account of appropriation for Building, at State Institutions	98,672 70	
Coal on hand, undivided	2,075 04	
Due from sundry parties for labor and board at State Prison, December 31, 1906	2,947 10	
Due on credits	50 04	107,475 44
		$466,823 71

Daily average number of inmates.

State Hospital for Insane	1,005	
State Farm	792	
State Prison and Jail	482	
Sockanosset School	359	
Oaklawn School	49	2,687

Gross cost of the Institutions	$334,732 11
Gross cost per year for one inmate	126 98
Gross cost per week for one inmate	2 44
Net cost of all the Institutions	$277,207 46
Net cost per year for one inmate	105 12
Net cost per week for one inmate	2 02

ESTIMATE OF EXPENDITURES.

It is estimated that the Board will require for the maintenance of the expected number of inmates in the Institutions the coming year and for necessary repairs, the sum of $300,000.00, in addition to their receipts.

The estimate in detail is as follows:

For the support of the Hospital for the Insane	$90,000 00
For the support of the State Farm	82,500 00
For the support of the Prison and Jail	42,000 00
For the support of the Sockanosset School	60,500 00
For the support of the Oaklawn School	7,500 00
For the expenses of the Board, including salaries of Secretary and Clerks	7,500 00
For expenses of removal of paupers including salaries of Agent and Clerks and probation work	10,000 00
	$300,000 00

This estimate is $10,000.00 less than the estimate for 1906. At the close of 1906, $13,000.00 of the appropriation for that year remained unused and expired by limitation.

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Respectfully submitted by the Board of State Charities and Corrections.

JAMES F. McCUSKER.
R. H. I. GODDARD.
WALTER A. READ.
THOMAS W. WATERMAN.
HARRY H. SHEPARD,
GEORGE R. LAWTON.
ROBERT F. RODMAN.
JOHN J. WATSON, JR.
PHILIPPE BOUCHER.

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REPORT OF THE SECRETARY.

To the Board of State Charities and Corrections:

The Secretary respectfully presents the following report:

The regular semi-monthly meetings of the Board have been held alternately at the Institutions and at their office in Providence. Three special meetings were held during 1906.

Rhode Island State Treasury in account with Board of State Charities and Corrections:

Appropriation for maintenance of State Institutions:

	Dr.	Cr.
To appropriation made for 1906	$810,000 00	
To money paid into the Treasury in 1906	57,265 72	
By payments upon the order of the Board		$853,610 79
By balance undrawn December 31, 1906		13,654 93
	$867,265 72	$867,265 72

Appropriation for Construction at State Hospital for Insane:

	Dr.	Cr.
To balance available January 1, 1906	$968 91	
By balance undrawn December 31, 1906		$968 91
	$968 91	$968 91

Appropriation for Purchase of Land at State Institutions:

	Dr.	Cr
To balance available January 1, 1906	$258 13	
To appropriation made 1906, available January 1, 1907	2,100 00	
By balance undrawn December 31, 1906		$2,358 13
	$2,358 13	$2,358 13

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Appropriation for Industrial Training, at Sockanosset School:

	Dr.	Cr.
To balance available January 1, 1906	$1,361 68	
By payments upon the order of the Board		$958 16
By balance undrawn December 31, 1906		403 52
	$1,361 68	$1,361 68

Appropriation for Building at State Institutions:

	Dr.	Cr.
To appropriation made in 1906	$100,000 00	
By payments upon the order of the Board		$1,327 30
By balance undrawn December 31, 1906		98,672 70
	$100,000 00	$100,000 00

STATE AUDITOR'S OFFICE,
PROVIDENCE, R. I., January 1, 1907.

This is to certify that the books of this department verify the foregoing statements of accounts with expenditures.

CHARLES C. GRAY,
STATE AUDITOR.

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STATEMENT OF MONEY COLLECTED.

The sums collected and paid into the General Treasury are in detail as follows:

1906.

Jan.	1	From	Providence Gas Company, rebate on gas for 1905	$305 51
	31	"	Elmer Butterfield, collected at Sockanosset School	105 35
	31	"	James H. Eastman, collected at State Farm	101 19
	31	"	F. B. Jewett, collected at State Hospital for Insane	67 50
	31	"	Andrew J. Wilcox, collected at State Prison	2,261 77
	31	"	W. R. Wightman, collected for Board of Insane	2,137 88
	31	"	W. R. Wightman, collected for board at Almshouse	1,347 79
	31	"	W. R. Wightman, collected for Interest	1 28
Feb.	28	"	Andrew J. Wilcox, collected at State Prison	2,283 86
	28	"	F. B. Jewett, collected at State Hospital for Insane	117 01
	28	"	W. R. Wightman, collected for board of Insane	1,407 21
	28	"	W. R. Wightman, collected for board at Almshouse	242 19
	28	"	W. R. Wigh tman,collected for Interest	2 66
	28	"	Elmer Butterfield, collected at Sockanosset School	110 88
	28	"	James H. Eastman, collected at State Farm	144 68
Mar.	31	"	Andrew J. Wilcox, collected at State Prison	1,873 86
	31	"	Elmer Butterfield, collected at Sockanosset School	41 45
	31	"	W. R. Wightman, collected for board of Insane	1,008 74
	31	"	W. R. Wightman, collected for board at Almshouse	25 00
	31	"	James H. Eastman, collected at State Farm	87 69
	31	"	F. B. Jewett, collected at State Hospital for Insane	270 89
April	7	"	J. H. Eastman, collected at State Farm	577 24
	28	"	J. H. Eastman, collected at State Farm	344 00
	30	"	F. B. Jewett, collected at State Hospital for Insane	168 28
	30	"	Elmer Butterfield, collected at Sockanosset School	47 08
	30	"	W. R. Wightman, collected for board of Insane	1,778 61
	30	"	W. R. Wightman, collected for board at Almshouse	1,186 40
	30	"	W. R. Wightman, collected for Interest	8 79
	30	"	Andrew J. Wilcox, collected at State Prison	2,532 18
May.	29	"	James H. Eastman, collected at State Farm	251 18
	31	"	Elmer Butterfield, collected at Sockanosset School	120 73
	31	"	F. B. Jewett, collected at State Hospital for Insane	211 77
	31	"	Andrew J. Wilcox, collected at State Prison	2,146 69
	31	"	W. R. Wightman, collected for board of Insane	1,719 59
	31	"	W. R. Wightman, collected for board at Almshouse	331 13
	31	"	W. R. Wightman, collected for Interest	2 85
June	30	"	Andrew J. Wilcox, collected at State Prison	2,647 35
	30	"	F. B. Jewett, collected at State Hospital for Insane	195 99
	30	"	James H. Eastman, collected at State Farm	198 80
	30	"	Elmer Butterfield, collected at Sockanosset School	25 80
	30	"	Walter R. Wightman, collected for board of Insane	1,550 89
	30	"	W. R. Wightman, collected for board at Almshouse	90 15
	30	"	W. R. Wightman collected for Interest	2 70
July	31	"	W. R. Wightman, collected for board of Insane	2,257 68
	31	"	W. R. Wightman, collected for board at Almhouse	1,208 68
	31	"	W. R. Wightman, collected for Interest	1 98
	31	"	James H. Eastman, collected at State Farm	102 94
	31	"	Elmer Butterfield, collected at Sockanosset School	32 75
	31	"	Andrew J. Wilcox, collected at State Prison	2,149 78
	31	"	F. B. Jewett, collected at State Hospital for Insane	17 55
Aug.	31	"	W. R. Wightman, collected for board of Insane	1,353 74
	31	"	W. R. Wightman, collected for board at Almshouse	99 58
	31	"	W. R. Wightman, collected for Interest	3 33

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Aug.	31	From	F. B. Jewett, collected at State Hospital for Insane	52 42
	31	"	Elmer Butterfield, collected at Sockanosset School	14 41
	31	"	James H. Eastman, collected at State Farm	85 60
	31	"	Andrew J. Wilcox, collected at State Prison	2,122 29
Sept.	29	"	Andrew J. Wilcox, collected at State Prison	2,272 26
	29	"	F. B. Jewett, collected at State Hospital for Insane	65 26
	29	"	Elmer Butterfield, collected at Sockanosset School	89 87
	29	"	James H. Eastman, collected at State Farm	58 65
	29	"	W. R. Wightman, collected for board of Insane	1,413 12
	29	"	W. R. Wightman, collected for board at Almshouse	91 56
	29	"	W. R. Wightman, collected for interest	3 42
Oct.	29	"	Andrew J. Wilcox, collected at State Prison	2,007 62
	31	"	F. B. Jewett, collected at State Hospital For Insane	110 03
	31	"	James H. Eastman, collected at State Farm	159 18
	31	"	Elmer Butterfield, collected at Sockanosset School	33 89
	31	"	W. R. Wightman, collected for board of Insane	1,881 13
	31	"	W. R. Wightman, collected for board at Almshouse	957 09
	31	"	W. R. Wightman, collected for Interest	1 87
Nov.	28	"	F. B. Jewett, collected at State Hospital for Insane	67 92
	28	"	Elmer Butterfield, collected at Sockanosset School	40 60
	30	"	W. R. Wightman, collected for board of Insane	985 73
	30	"	W. R. Wightman, collected for board at Almshouse	392 43
	30	"	W. R. Wightman, collected for Interest	2 76
	30	"	Andrew J. Wilcox, collected at State Prison	2,249 40
	30	"	James H. Eastman, collected at State Farm	268 52
Dec.	31	"	W. R. Wightman, collected for board of Insane	1,358 85
	31	"	W. R. Wightman, collected for board at Almshouse	225 58
	31	"	W. R. Wightman, collected for Interest	1 88
	28	"	James H. Eastman, collected at State Farm	202 73
	28	"	F. B. Jewett, collected at State Hospital for Insane	65 95
	28	"	James H. Eastman, collected at Sockanosset School	45 04
	31	"	Andrew J. Wilcox, collected at State Prison	2,647 89
				$57,205 27

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SALARIES.

The names and salaries of persons appointed or employed by the Board of State Charities and Corrections, during 1906, (Chapter 291, Section 11, of the General Laws of Rhode Island,) are as follows:

All are furnished with board, lodging and washing, excepting those against whose name an asterisk is placed.

STATE INSTITUTIONS ETC.,

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
James H. Eastman	Supt. Workhouse, H. of C., A. H., S. S. & Oaklawn School	Per year. $ 3,600 00	1 year	$3,600 00
Fred B. Jewett & wife	Supt. & Housekeeper Hospital for Insane.	2,000 00	1 year	2,000 00
Fred B. Jewett	Consulting Physician.	500 00	1 year	500 00
Andrew J. Wilcox	Warden, Prison & Jail	2,500 00	1 year	2,500 00
George E. Simpson	Deputy & Asst. Physician State Hospital for Insane	1,200 00	1 year	1,200 00
Edgar I. Hanscom	2nd. Asst. Physician State Hospital for Insane	700 00	11 months	641 66
do do	do. do	800 00	1 month	66 66
Henry A. Jones	Resident Physician	1,800 00 Per month.	1 year	1,800 00
Leo J. Hines	Interne State Hospital for Insane	25 00	4 days	3 28
H. Diran Melik-Vartanian	do. do	25 00	2 mos. 25 days	70 16
Robert H. McRae	do. do	25 00	2 mos. 11½ days	59 56
Richard T. Galvin	do. do	25 00	1 mo. 15 days	37 10
Frank P. Bayliss	do. do	25 00	1 month	25 00
George A. Miller	do. do	25 00	4 mos. 14 days	111 29
John M. McLeod	do. do	25 00	5 months	125 00
Patrick J. McKenzie	do. do	25 00	1 month	25 00
Harry M. Crossland	do. Almshouse	25 00	3 days	2 42
Leo J. Hines	do. do	25 00	7 months	175 00
George A. Miller	do. do	25 00	5 months	125 00
Arthur. H Jackson	do. do	25 00	3 mos. 9 days	82 50
H. Diran Melik-Vartanian	do. do	25 00	4 mos. 20 days	116 18
Richard T. Galvin	do. do	25 00	4 mos. 11 days	108 87
James H. Nutting	Religious Instructor	Per year. 1,800 00	2 months	300 00
Charles H. Ewer	Supply do do		2 months	166 00
do do	do. do	1,800 00	10 months	1,500 00
Matthew Harkins*	Catholic Clergyman	1,800 00	1 year	1,800 00

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STATE INSTITUTIONS, ETC.—*Continued.*

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
Charles H. Peckham*	Sec'y B. of S. C. & C.	Per year. 3,000 00	1 year	$3,000 00
James R. Read*	Clerk B. of S. C. & C.	1,500 00	2 months	250 00
do do	do. do. do.	1,800 00	10 months	1,500 00
Emily M. Nichols*	Clerk B. of S. C. & C.	Per month. 62 50	1 year	750 00
Carrie E. Catley*	do. do.	62 50	1 year	750 00
‡Walter R. Wightman*	Agent S. C. & C.	Per year. 2,500 00	1 year	2,500 00
Louise H. Purkis*	Clerk Agent S. C. & C.	Per month. 62 50	1 year	750 00
Nora F. McCormick*	Asst. Clerk do. do.	Per day. 2 00	58 days	206 00
William J. Wallace*	Probation Officer	Per month. 100 00	1 year	1,200 00
Margaret H. Dennehy*	do. do.	100 00	1 year	1,200 10
Thomas B. Maymon*	do. do.	50 00	8 months	400 00
George L. Smith*	do. do.	50 00	8 months	400 00

‡This amount includes all assistance in removal of paupers.

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
Helen R. Putnam	Supervisor (female) Hospital for Insane.	Per month. 50 00	11 mos. 20 das	582 26
Edna P. Weber	Assistant Supervisor Hospital for Insane.	27 50	4 months	110 00
do. do	do. do	30 00	3 mos. 25 days	114 19
Jennie M. Patterson	do. do	20 00	5 mos. 28 das	118 07
Olivette Wheelan	do. do	25 00	3 mos, 9⅓ das	82 60
Mabelle H. Slayton	do. do	25 00	4 months	100 00
Carrie Murch	Night Superv'r do	22 50	4 months	90 00
do. do	do. do	25 00	7 mos. 20 das	191 13
Estelle L. Brown	Clerk do	35 00	11 mos. 26 das	414 92
Bessie Heptonstall	Office Girl	25 00	10 mos. 1 da	250 83
Sadie C. Greer	Laundry Matron	20 00	5 months	100 00
do. do	do. do	25 00	6 mos. 20 days	166 08
Elizabeth Pierce	Laundress	9 00	3 months	27 00
do. do	do	12 00	7 months	84 00
do. do	do	20 00	2 months	40 00
Marietta S. Pike	Sewing Matron	20 00	5 days	3 23
Hattie W. Tillinghast	do. do	20 00	1 mo. 29 days	38 71
Mary P. Dwelle	do. do	20 00	2 mos. 20 days	59 35
do. do	do. do	25 00	5 months	125 00
Mamie Burnham	Dressmaker	22 50	4 mos. 28 days	106 69
Martha Scott	do	20 00	4 mos. 15 days	90 00
do. do	do	22 50	2 months	45 00
Lillian M. Douglas	Kitchen Matron	22 50	1 month	22 50
do. do	do. do	25 00	3 mos. 13 days	85 48
Elizabeth Bougerie	do. do	20 00	3 mos. 17½ days	69 99
Katherine Moore	do. do	25 00	18 days	15 00
Marion C. Ashle	do. do	20 00	26 days	17 33
Lucy Comstock	do. do	25 00	1 mo. 3 days	27 50
Phebe C. Williams	Cook—Doctor's House	22 50	4 months	90 00
do. do	do. do. do	25 00	7 mos. 18 days	190 52
Clara W. Harr	Musician	25 00	11 mos. 26 days	296 67
Annie Kent	Attendant	20 00	2 mos. 23 days	55 23
Bertha M. Hall	do	20 00	23 days	15 33
Jennie E. Harrub	do	20 00	3 mos. 6½ days	64 06
Ella F. McDermott	do	20 00	6 mos. 24 days	135 59
do. do	do	22 50	3 months	67 50
Eleanor F. George	do	20 00	11 days	7 10

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STATE HOSPITAL FOR INSANE.—*Continued.*

Name.	*Offices.*	*Rate,*	*Time.*	*Amount.*
		Per month.		
Hattie F. Mountain	Attendant	$ 20 00	26½ days	$ 16 45
Laura Hatfield	do	20 00	1 mo. 24 days	37 10
Florence S. LePine	do	20 00	1 mo. 7 days	25 00
Mary J. Vickers	do	20 00	4 mos. 11 days	88 18
Bessie Wilson	do	20 00	10 mos. 15 days	210 71
Hannah Covil	do	20 00	7 mos. 29 days	158 75
Elizabeth D. Husted	do	20 00	22 days	14 19
Helen P. Donalds	do	20 00	22 days	14 19
Hattie M. Ball	do	20 00	9 mos. ½ day	180 33
Lydia Ashworth	do	20 00	4 mos. 1½ days	80 90
Mary A. Sampson	Housekeeper at Farm	15 00	5 months	75 00
do. do	do. do	20 00	6 mos. 20 days	132 90
Isabel K. Campbell	Attendant Hospital for Insane	20 00	8 mos. 8 days	168 00
Edith C. Sylvester	do. do	22 50	11 mos. 21 days	261 77
Effie C. Williams	do. do	20 00	12½ days	8 06
Jennie E. Ramsay	do. do	20 00	5 months	100 00
Marie E. Davaney	do. do	20 00	1 month	20 14
Nellie Chase	do. do	20 00	8 mos. 9 days	164 86
Estelle M. Carpenter	do. do	20 00	3 mos. 11 days	67 33
Hester R. McFarland	do do	20 00	2 mos. 28½ days	56 85
Bessie A. Picker	do. do	20 00	27 days	17 42
Josie E. Jacques	do. do	20 00	9 mos. 4 days	182 58
Alice L. Sylvester	do. do	27 50	6 mos. 14 days	177 42
Catherine J. Reid	do. do	20 00	8 months	160 00
do. do	do. do	22 50	3 mos. 19 days	81 75
Lillian V. Clarke	do. do	20 00	5 mos. 21 days	114 00
Marion I. Penniman	do. do	25 00	14 days	11 29
Fannie L. Pigot	do. do	20 00	2 mos. 15½ days	51 54
Bessie MacKay	do. do	22 50	8 mos. ½ day	202 02
Etta M. Bowley	do. do	20 00	4 months	80 00
Lida E. Bowers	do. do	20 00	1 mo. 30½ days	39 68
Jennie Wallace	do. do	20 00	5 mos. 1 day	100 67
Agnes E. Bolivar	do. do	20 00	8 months	160 00
do. do	do. do	22 50	4 months	90 00
Catherine MacKenzie	do. do	20 00	9 mos. 15 days	189 68
Carrie H. Tillson	do. do	20 00	1 mo. 2 days	21 43
Olivette Wheelan	do. do	20 00	7 mos. 14 days	149 08

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Names.	*Offices.*		*Rate.*	*Time.*	*Amount.*
Bertha I. Vock	Attendant for Insane	Hospital	Per month $ 20 00	5 months	100 00
do. do.	do.	do.	22 50	1 mos. 7 days	27 56
do. do.	do.	do.	25 00	29 days	28 89
Grace F. Potter	do.	do.	20 00	5 mos. 20 days	118 33
Ella Thompson	do.	do.	20 00	11 mos. 20 days	233 90
Lottie Douglas	do.	do.	20 00	5 mos. 5 days	108 33
Grace B. Daggett	do.	do.	20 00	1 mos. 28 days	38 67
M. M. Schoenberger	do.	do.	20 00	18½ days	11 94
Florence V. Leach	do.	do.	20 00	13 days	8 23
Dorothy Tedford	do.	do.	20 00	1 mos. 25½ days	36 11
Emma G. Small	do.	do.	20 00	4 mos. 10 days	86 46
Lena J. Sprague	do.	do.	20 00	3 mos. 11 days	67 33
Minnie Mann	do.	do.	20 00	5½ days	3 55
Marion L. Bottomley	do.	do.	25 00	1 year	300 00
Marion W. Bessom	do.	do.	20 00	5 mos. 8 days	105 33
Mary Kent	do.	do.	20 00	1 year	240 00
Minnie Shaw	do.	do.	20 00	11 mos. 20 days	232 90
Helen B. Baylis	do.	do.	20 00	8 months	160 00
do. do.	do.	do.	22 50	3 mos. 17 days	79 57
Cora A. Bowman	do.	do.	20 00	7 months	140 00
do. do.	do.	do.	22 50	5 months	112 50
Gertrude C. Vann	do.	do.	20 00	1 mos. 13 days	28 56
Ruth A. McGowan	do.	do.	20 00	16 days	10 33
Etta Hamm	do.	do.	20 00	4 mos. 20½ days	98 23
Blanche Bean	do.	do.	20 00	2 mos. 23½ days	55 29
Annie G. Knowlton	do.	do.	20 00	4 mos. 7 days	84 41
Agnes B. Rent	do.	do.	20 00	1 mos. 26½ days	37 67
Jennie Gould	do.	do.	20 00	5 mos. 10 days	106 45
Ada M. Forrest	do.	do.	20 00	17 days	10 99
Winifred Loomis	do.	do.	20 00	30 days	19 68
Margaret Driscoll	do.	do.	20 00	6 days	3 87
Grace Seidge	do.	do.	20 00	7 mos. 24 days	155 48
Anna M. Silva	do.	do.	20 00	4 mos. 23 days	94 84
Eva C. Publicover	do.	do.	20 00	6 mos. 2 days	121 33
Annie M. Ralph	do.	do.	20 00	5 mos. 22 days	114 65
Ethel M. Compton	do.	do.	20 00	2 mos. 9 days	45 90
Emily Burns	do.	do.	20 00	4 mos. 24 days	95 49

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
Ethel Gilbert	Attendant Hospital for Insane	Per month. $ 20 00	1 mo. 6 days	23 59
Anna Oxley	do. do.	20 00	8½ days	2 33
Jean B. Harrison	do. do.	20 00	2 mos. 30 days	59 89
Lena Porter	do. do.	20 00	5 mos. 30 days	119 59
Irene J. Rood	do. do.	20 00	16 days	10 67
Mary Scott	do. do.	20 00	6 mos. 15 days	130 00
Jessie McKenzie	do. do.	20 00	3 mos. 7 days	63 87
Francis B. Dunbar	do. do.	20 00	2 mos. 4 days	42 67
Lillian R. Cook	do. do.	20 00	13½ days	8 71
Lucy M. Kelley	do. do.	20 00	4 mos. 18 days	92 00
Mary M. Hoffenreich	do. do.	20 00	1 mo. 8 days	25 33
Flora A. McPhail	do. do.	20 00	6 mos. 20 days	133 33
Annie E. Marton	do. do.	20 00	10 days	6 67
Cathryn Brink	do. do.	20 00	17 days	10 97
Bertha Archibald	do. do.	20 00	6 mos. 25 days	136 67
Bessie McClure	do. do.	20 00	1 mo. 13 days	28 67
Ada Hyson	do. do.	20 00	30 days	19 68
Florence M. Beckner	do. do.	20 00	12 days	7 74
Jennie A. Aldrich	do. do.	20 00	5 mos. 9 days	105 81
Laura R. Hiltz	do. do.	20 00	1 mo. 16 days	30 02
Gladys Williams	do. do.	20 00	2 mos. 4 days	42 52
Anna L. Benner	do. do.	20 00	3 mos. 11½ days	67 67
Sara E. Jordan	do. do.	20 00	2 mos. 27 days	57 42
Eva E. McLellan	do. do.	20 00	1 mo. 22 days	34 67
Susie A. Treen	do. do.	20 00	27½ days	17 83
Mae E. Stone	do. do.	20 00	1 mo. 15 days	30 00
Mary L. Kinne	do. do.	20 00	1 mo. 12½ days	27 87
Edith M. Gray	do. do.	20 00	1 mo. 22 days	34 67
Bessie Farrell	do. do.	20 00	1 mo. 3 days	22 33
Belle B. Hamill	do. do.	20 00	1 month	20 00
Willard Putnam	Supervisor male	55 00	11 mos. 20 days	640 48
William H. Follett	1st Asst. Sup'v'r, male	45 00	11 mos. 20 days	524 08
Charles H. Getty	2nd. do. do. do.	25 00	4 months	100 00
do. do.	do. do. do. do.	27 50	5 mos. 19 days	154 91
do. do.	do. do. do. do.	30 00	2 months	60 00
Hervey Burnham	do. do. do. do.	30 00	4 mos. 23 days	142 26
Harry K. Butterfield	Engineer	70 00	3 months	210 00

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Name.	*Offices.*	*Rate.*	*Time.*	*Amount.*
Harry K. Butterfield	Engineer	75 00	8 mos. 27 days	667 50
Maurice A. Feyler	Assistant Engineer	35 00	3 mos. 22 days	120 67
Charles H. Loomis	do. do	25 00	6 mos. 18 days	165 02
Herbert R. Elmer	2nd. do. do	30 00	11 mos. 14 days	344 00
James F. Riley	Day Fireman	25 00	½ day	40
John Shaw	do. do	25 00	7 days	5 65
Michael Cox	do. do	25 00	18 days	15 88
George E. Springham	do. do	25 00	3 mos. 13 days	86 19
Frank W. Thompson	do. do	25 00	5 mos. 9½ days	132 92
William T. Preece	do. do	20 00	1 mo. 29 days	39 33
Edward W. Jones	Night Fireman	25 00	2 mos. 16 days	62 90
Michael Galvian	do. do	25 00	15 days	12 50
William A. Gliesmann	do. do	25 00	5 mos. 20 days	141 13
Lawrence K. Feyler	do. do	25 00	2 mos 8 days	56 67
William R. Bresee	Teamster	27 50	3 months	82 50
do. do	do.	30 00	7 mos. 10 days	213 00
William J. Douglas	Cook	32 50	1 month	32 50
do. do	do.	35 00	3 mos. 10 days	116 18
Joseph Bougerie	do.	30 00	3 mos. 20 days	109 35
George W. Moore	do.	35 00	18 days	21 00
Howard S. Ashleigh	do.	30 00	26 days	26 00
Hubert G. Comstock	do.	35 00	1 mo. 3 days	38 50
Garrit Reitsma	Baker	45 00	4 mos. 10 days	194 53
Lewis F. Seamans	do.	40 00	5 mos. 23 days	229 68
do. do	do.	45 00	2 months	90 00
Frank D. Shaw	Store keeper	40 00	11 mos. 20 days	475 81
William E. Underwood	Porter	30 00	11 mos. 26 days	356 00
Martin Campbell	Barber	30 00	9 mos. 1 day	270 97
Harvey Hunter	Painter	35 00	1 month	35 00
Andrew Carlin	do.	30 00	2 months	60 00
do. do	do.	35 00	4 months	140 00
Eliot G. Broadwell	do.	35 00	4 mos. 19 days	161 45
Ivory Marr	Carpenter	30 00	11 mos. 19 days	350 86
Howard Sutherland	do.	20 00	24 days	15 48
Ashford A. Sampson	Boss Farmer	50 00	1 year	600 00
George Goodspeed	Gang Officer	35 00	11 mos. 20 days	407 58
Wm. T. Buchanan	do. do	20 00	21½ days	13 87

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Name.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per month.		
Charles E. Bartlett	Gang Officer	30 00	3 months	84 19
William Hastings	do. do.	25 00	2 mos. 4 days	58 23
Wm. E. McLellan	do. do.	30 00	8 mos. 26 days	266 00
Silas M. Gould	Gardener	30 00	3 months	90 00
do. do.	do.	35 00	9 months	315 00
Wendell Phillips	Barn Officer	25 00	4 mos. 5½ days	104 44
do. do.	do. do.	27 50	2 mos. 16 days	69 66
Wm. E. McLellan	do. do.	27 50	3 months	82 50
Thomas Greer	Supervisor—Laundry.	25 00	7 months	175 00
do. do.	do. do.	27 50	4 mos. 20 days	127 64
William H. Carr	Musician	30 00	11 mos. 15 days	344 32
Clinton H. Thompson	Night Supervisor	25 00	2 months	50 00
do. do.	do. do.	27 50	3 mos. 20 days	100 24
do. do.	do. do.	30 00	6 months	180 00
Norman I. Foster	Attendant	20 00	1 month	20 00
do. do.	do.	22 50	5 mos. 18 days	102 41
George F. Lockwood	do.	20 00	2 mos. 21 days	54 00
Victor Miller	do.	20 00	1 mo. 7½ days	25 19
George W. Gilbert	do.	20 00	1 mo. 6 days	23 59
James Wallace	do.	20 00	3 months	60 00
do. do.	do.	22 50	2 mos. 17½ days	58 13
Henry Baker	do.	20 00	25 days	16 22
Hobart H. Vann	do.	20 00	3 mos. 22½ days	74 90
Frank Landau	do.	20 00	4 days	2 58
Jacob M. Dualm	do.	20 00	1 mo. 1 days	20 65
Otto C. Best	do.	20 00	1 mo. 4 days	22 04
Harold W. Carpenter	do.	20 00	1 month	20 00
do. do.	do.	22 50	2 mos. 11 days	58 25
Joseph Ward	do.	20 00	7 mos. 8 days	146 83
Edmund F. McGrath	do.	20 00	2 months	40 00
Joseph P. Bessom	do.	20 00	1 mo. 26 days	38 57
do. do.	do.	22 50	3 mos. 8 days	78 50
Fred Vann	do.	20 00	1 mo. 30 days	39 90
Wm. R. Harris	do	20 00	29 days	19 64
William Oxley	do.	20 00	3½ days	2 33
Charles B. Turner	do.	20 00	1 mo. 10 days	26 45
Frank Twomey	do.	20 00	8 days	5 16

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Name.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per month.		
Phillip McDermott	Attendant	22 50	3 months	67 50
do. do	do	25 00	7 months	175 00
do. do	do	27 50	2 months	55 00
Pearl I. Lent	do	20 00	2 months	40 00
do. do	do	22 50	3 months	67 50
do. do	do	25 00	6 months	150 00
Stephen L. Murch	do	25 00	10 mos. 24 days	269 01
John Farrell	do	20 00	1 mo. 2 days	21 33
Francis B. Dunbar	do	20 00	5 days	3 23
Edwin Brawn	do	20 00	2 mos. 11 days	47 10
John H. Patterson	do	20 00	3 mos. 6 days	63 87
do. do	do	22 50	2 mos. 27 days	65 25
Frank P. McBride	do	20 00	2 mos. 5 days	43 23
James H. Ashworth	do	20 00	5 mos. ⅓ days	80 90
Millard F. Weymouth	do	20 00	1 mo. 21⅓ days	34 42
William F. Smith	do	20 00	29 days	20 06
Frank Rocha	do	20 00	12 days	8 00
Joseph Schoenberger	do	20 00	18½ days	11 94
William J. Leach	do	20 00	1 mo. 6½ days	23 55
Frank C. McGowan	do	20 00	16 days	10 33
Vernon G. Rand	do	20 00	13½ days	9 00
Chester E. Shaw	do	20 00	2 mos. 26½ days	57 10
Walter S. Harrub	do	20 00	3 mos. 6½ days	64 06
John M. Lindsay	do	20 00	4 mos. 27 days	97 42
Howard M. Hoag	do	27 50	3 mos. 27½ days	106 90
do. do	do	30 00	1 month	30 00
Fred A. Folsom	do	20 00	9½ days	6 13
Hartland F. Moody	do	20 00	29 days	18 71
Fred Butterfield	do	20 00	2 mos. 25 days	56 11
Willis E. Berry	do	27 50	2 mos. 5½ days	59 88
Daniel Rogers	do	20 00	3 mos. 19½ days	72 58
do. do	do	22 50	4 months	90 00
do. do	do	25 00	2 months	50 00
Asahel H. Jewell	do	20 00	1 mo. 26 days	37 33
John Becker	do	20 00	2½ days	1 67
George H. Delaney	do	22 00	2 months	45 00
do. do	do	25 00	9 mos. 14 days	236 72

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STATE HOSPITAL FOR THE INSANE.--*Continued.*

Names:	*Offices.*	*Rate.*	*Time.*	*Amount.*
Cornelius M. Capron	Attendant	30 00	11 mos. 20 days	349 85
Fred L. Gates	do	20 00	1 mo. 28 days	35 33
William N. Merrill	do	20 00	20 days	13 28
Oscar L. Blaisdell	do	30 00	7 mos. 18 days	221 28
Augus Hamm	do	20 00	20⅓ days	13 28
Perley Perry	do	20 00	1 mo. 2 days	20 66
Elmer W. Daggett	do	20 00	1 mo. 28 days	33 67
Herbert R. Hackett	do	20 00	3 mos. 29 days	79 33
John L. Boynton	do	20 00	13⅓ days	8 71
John D. Campbell	do	20 00	11 mos. 27 days	336 45
Albert Skinner	do	20 00	1 mo. 15 days	30 00
Fred Elmes	do	20 00	22 days	14 19
James Hanley	do	20 00	12 days	7 74
Allin Taylor	do	20 00	25 days	16 13
William H. Blight	do	20 00	12 days	7 74
Clinton H. Whitmore	do	20 00	1 mo. 8 days	25 58
Archie Fiske	do	20 00	18 days	11 85
Lawrence K. Feyler	do	20 00	2 mos. ⅓ day	40 32
Alexander Campbell	do	22 50	2 mos. 12 days	53 71
Israel Deniger	do	20 00	4 mos. 13⅓ days	88 06
do. do	do	22 50	4 months	90 00
do. do	do	25 00	1 month	25 00
Louis M. Clark	do	25 00	10 months	250 00
do. do	do	27 50	2 months	55 00
Ira S. Austin	do	20 00	1 mo. 4⅓ days	22 48
Adelbert D. Covil	do	20 00	3 mos. 27 doys	77 42
do. do	do	22 50	3 mos. 28 days	87 82
Arthur E. Gilman	do	20 00	3 mos. 20⅓ days	73 28
do. do	do	22 50	1 month	22 50
Edward R. Johnson	do	20 00	1 mo. 9⅓ days	25 80
Albert Smith	do	20 00	17 days	10 97
Farquar McRae	do	20 00	3 mos. 5 days	63 33
Harry C. Willis	do	20 00	24 days	15 48
Joseph A. Hodkinson	do	20 00	6 days	3 87
Frank L. Merrill	do	20 00	4 mos. 6 days	83 87
Charles O. Dodsworth	do	20 00	12⅓ days	8 13
Peter Gordon	do	20 00	1 mo. 28⅓ days	35 35

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STATE HOSPITAL FOR THE INSANE.—*Continued.*

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per month.		
James McDermott	Attendant	20 00	6 days	4 00
William H. Brown	do	27 50	10 mos. 4½ days	277 43
Howard McDonald	do	20 00	1 mo. 25 days	36 67
Oscar C. Hazen	do	20 00	26 days	16 77
Elmer M. Chadwick	do	20 00	27 days	17 42
Howard S. Douglas	do	25 00	5 mos. 4 days	129 84
Albert W. Burns	do	20 00	27½ days	18 88
John M. Wheelan	do	20 00	16½ days	10 81
William C. Stimeling	do	20 00	2 mos. 14 days	48 78
William H. Silloway	do	30 00	11 mos. 25 days	354 19
Lars Anderson	do	25 00	1 month	25 00
do. do	do	27 50	7 mos. 19 days	211 55
do. do	do	30 00	2 mos. 30 days	79 35
Josiah H. Bowman	do	20 00	1 month	20 00
do. do	do	22 50	4 months	90 00
do. do	do	25 00	7 months	175 00
Bret H. Potter	do	20 00	18½ days	11 94
Jay G. Bellows	do	20 00	6 mos. 19½ days	133 00
David D. Thrasher	do	20 00	3 months	60 00
do. do	do	22 50	3 mos. 11 days	75 48
Leo Hoffenreich	do	20 00	1 mo. 8 days	25 33
Charles I. Beebe	do	20 00	30 days	19 35
Thomas Moore	do	20 00	14 days	9 22
Leander Small	do	20 00	4 mos. 10 days	86 46
Arthur Walker	do	20 00	7 days	4 52
Ernest H. Timms	do	20 00	3 mos. 30 days	78 46
John F. Kane	do	20 00	3 mos. 1 day	60 67
George Koons	do	20 00	1 mo. 27 days	39 19
Harry Taylor	do	20 00	1 mo. 5 days	23 40
Harry McPhail	do	20 00	4 mos. 20 days	93 33
do. do	do	22 50	3 months	67 50
do. do	do	25 00	1 month	25 00
Howard A. Freeman	do	20 00	1 mo. 11 days	27 33
Thomas J. Mansfield	do	20 00	17½ days	11 29
		Per Day.		
Andrew L. Session	Special Nurse	3 00	11 days	33 00
Joseph Jacques	Special Carpenter	2 25	4 days ½ hour	9 13
Napoleon Jacques	do. do	2 25	4 days ½ hour	9 13
Elisle Gagnon	do. do	2 25	24 days 6 hours	55 50
Napoleon LeCler	do. do	2 25	5 days 8 hours	13 25
John Nadeau	do. do	2 25	12 days	27 00
John Chenevert	do. do	2 25	22 days 2 hours	50 09
Elidor Bibeault	do. do	3 00	64 days 10 hours	194 99

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STATE WORKHOUSE, HOUSE OF CORRECTION AND ALMSHOUSE.

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per year.		
Timothy P. Dodge	Deputy Supt. Workhouse and H. of C.	$1,200 00	1 year	$ 1,200 00
		Per month.		
Mary E. Wood	Matron, Female, House of Correction	50 00	8 months	400 00
do. do.	do. do.	60 00	4 months	240 00
Hattie D. Brockhause	Asst. Matron do.	30 00	11 mos. 15 day	343 55
Mildred A. Lawrence	do. do. do.	30 00	7 mos. 24 days	223 23
Caroline Kron	do. do. do.	30 00	1 year	360 00
Jessie Howard	do. do. do.	25 00	1 mo. 29 days	48 73
Sarah F. Beale	do. do. do.	25 00	4 mos. 16½ days	113 31
Ada J. Bunker	Relief Matron do.	25 00	5 mos. 2 days	126 05
Joanna S. Farr	Housekeeper—Supt's. House	30 00	1 year	360 00
Ira E. Higgins	Clerk	65 00	10 months	650 00
do. do.	do.	70 00	2 months	140 00
Esther Berkander	Assistant Clerk	25 00	3 mos. 7 days	80 83
Minnie C. Higgins	do. do.	50 00	4 mos. 21 days	224 91
Muriel Haslam	do. do.	25 00	5 months	125 00
David F. Prescott	Overseer H. of C.	60 00	1 year	720 00
James B. Mathewson	do. do.	50 00	1 year	600 00
Francis A. Bunker	do. do.	45 00	11 mos. 14½ days	516 05
John M. Whitcomb	do. do.	45 00	11 mos. 24 days	531 00
Pliny W. Langdell	do. do.	45 00	3 months	135 00
Charles L. Payson	do. do.	45 00	1 year	540 00
Royal D. Sleeper	do. do.	45 00	10 mos. 16½ days	471 95
Oscar C. Wentworth	do. do.	40 00	7 months	280 00
do. do.	do. do.	45 00	4 mos. 16 days	208 23
Nathaniel Doe	do. do.	45 00	11 mos. 22 days	526 74
Frank B. Swett	do. do.	30 00	1 month	30 00
Arthur E. James	do. do.	30 00	5 mos. 20 days	170 00
Archie MacKenzie	do. do.	30 00	9 days	8 71
Andrew J. Sternberg	do. do.	30 00	13 days	13 98
Raymond Conn	do. do.	30 00	4 mos. 29 days	148 08
Howard M. Hoag	do. do.	30 00	2 mos. 30 days	89 08
Hugh A. McKenzie	do. do.	30 00	2 months	60 00
Stanley Higgins	do. do.	30 00	7 mos. 22 days	231 29
Everett F Corliss	Storekeeper & Pharmacist	70 00	1 year	840 00
Chesley T. Trowsdale	Assistant Storekeeper	40 00	11 mos. 22 days	408 18
Arthur C. Walker	Engineer	60 00	1 year	720 00
John P. Carter	Carpenter	50 00	5 mos. 3 days	255 00

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STATE WORKHOUSE HOUSE OF CORRECTION AND ALMSHOUSE.—*Continued.*

Name.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per month.		
Henry M. Whipple	Carpenter	55 00	6 mos. 6 days	341 00
Patrick J. Callery	Baker	60 00	5 mos. 14 days	328 00
Garrit Reitsma	do	50 00	7 months	350 00
Clarence Kenney	Teamster	50 00	1 year	480 00
Samuel S. Wilson	Master Painter	64 00	1 year	780 00
		Per day.		
John F. Callery	Blacksmith	2 50	310 days	775 00
		Per Month.		
William T. Douglas	Plumber	60 00	11 mos. 28 days	706 00
Patrick Lamb	Mason	50 00	7 mos. 24 days	398 55
William Dewey	Inside Watchman	30 00	27 days	26 18
Frank B. Swett	do. do.	35 00	2 months	70 00
Pliny Langdell	do. do.	45 00	8 mos. 21 days	402 10
Patrick F. Shields	do. do.	35 00	2 mos. 26 days	102 50
do. do.	do. do.	40 00	9 months	360 00
		Per year.		
Asa L. May and wife	Dep. & House'k A., H.	1,200 00	1 year	1,200 00
		Per month.		
Calvena T. Norton	Matron Almshouse	50 00	1 year	600 00
Linda A. Cunningham	Attendant	25 00	10 mos. 27 days	273 68
Bessie M. Lowe	do	25 00	7 mos. 12 days	184 68
Laura A. James	do	20 00	3 months	60 00
Maria Doe	do	20 00	4 days	2 58
do. do.	do	25 00	9 mos. 3 days	225 81
Lilla M. Trowsdale	do	25 00	1 year	300 00
Mary M. Jamison	do	25 00	11 mos. 15 days	287 50
Muriel Haslam	do	25 06	7 months	175 00
Jennie F. Simonds	do	20 00	2 mos. 16 days	50 32
do. do.	do	25 00	8 mos, 28 days	221 75
Ellen G. Johnson	do	25 00	1 year	300 00
Hattie Messer	do	25 00	1 year	300 00
Winrietta Rolerson	do	20 00	3 months	60 00
do. do.	do	25 00	6 mos. 1 day	150 81
Lela Higgins	do	25 00	3 months	75 00
Hattie L. Waite	do	30 00	2 months	60 00
do. do.	do	35 00	9 mos. 8 days	323 40
Julia Coon	do	25 00	11 mos. 29½ days	308 79
Emma Bradstreet	do	20 00	2 mos. 22 days	54 19
do. do.	do	25 00	5 months	125 00
Minnie M. Bain	do	25 00	4 mos. 12 days	108 81
Elizabeth Jones	do	25 00	1 year	300 00

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STATE WORKHOUSE, HOUSE OF CORRECTION AND ALMSHOUSE.—*Continued.*

Name.	*Offices*	*Rate.*	*Time.*	*Amount.*
Catherine Haslam	Attendant Almshouse	Per month. 25 00	24½ days	19 76
Ida E. Averell	do	20 00	2 mos. 16 days	50 32
Harriet A. Broome	Nurse	Per week 10 00	22 days	31 43
Arthur E. James	Attendant	Per month. 25 00	2 mos. 11 days	82 57
H. H. Cunningham	do	35 00	11 mos. 26 days	417 58
Charles A. Norton	do	30 00	6 mos. 28 days	208 00
do. do	do	35 00	5 months	175 00
Albert E. Franklin	do	30 00	7 months	210 00
do. do	do	35 00	5 months	175 00
William Popham	do	25 00	11 mos. 28 days	308 33
John M. Simpson	do	35 00	2 months	70 00
do. do	do	40 00	6 mos. 28 days	269 68
Alexander Connor	do	25 00	5 mos. 5 days	129 17
James A. Averell	do	25 00	2 mos. 16 days	50 32
James R. Burns	do	10 00	6 months	60 00
do. do	do	15 00	3 months	45 00
do. do	do	30 00	2 mos. 17 days	59 86
Everett L. Carr	do	30 00	14 days	9 08
Charles McDermott	Relief do	5 00	10 mos. 27 days	54 50
Fred G. Clowes	Attendant	25 00	5 mos. 25 days	145 78
John G. Clark	do	30 00	2 mos. 6 days	44 00
do. do	do	25 00	2 mos. 28 days	69 17
Noe Lariviere	do	25 00	5 mos. 28 days	148 30
do. do	do	30 00	6 months	180 00
Mark A. Rolerson	do	20 00	3 months	60 00
do. do	do	25 06	2 mos. 24 days	70 00
do. do	do	30 00	4 mos. 26 days	146 00
Fred D. Aldrich	do	30 00	2 days	1 33
Calvin S. Pilley	do	30 00	2 mos. 16 days	50 32
do. do	do	25 00	4 mos. 8 days	105 89
John W. Bain	do	25 00	5 mos. 9 days	131 45
Edwin J. Collamore	Fireman, Boiler-house	30 00	1 year	360 00
Edward Kilbane	Night Fireman do	30 00	1 year	360 00

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STATE PRISON AND PROVIDENCE COUNTY JAIL.

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per year.....		
S. Edmund Slocum.....	Deputy Warden.....	$ 1,800 00	1 year.....	$ 1,800 00
Frank C. Viall.....	Clerk	1,500 00	1 year.....	1,500 00
		Per month..		
William O. Towne.....	Assistant Clerk.....	75 00	1 year.....	900 00
Clarence N. Cram.....	Engineer.....	60 00	1 year.....	720 00
Egbert W. Lowe.....	Steward.....	75 00	11 mos. 24 days...	883 06
Rufus W. Partridge.....	Hall Keeper.....	75 00	1 year.....	900 00
George W. Spencer.....	Overseer	75 00	11 mos. 17 days...	865 08
Thomas C. Henry.....	do.....	75 00	1 year.....	900 00
Oscar E. Kemp.....	do.....	75 00	1 year.....	900 00
Almer J. Davis.....	do.....	75 00	1 year.....	900 00
Wells S. Hannon.....	do.....	75 00	11 mos, 23 days...	882 50
Henry S. Spaulding.....	do.....	75 00	11 mos. 22½ days	879 43
J. Albert Millerd.....	Day Officer.....	65 00	11 mos. 24 days...	765 82
William C. Thompson..	do. do.....	60 00	11 mos. 23 days...	706 00
George O. Flanders.....	do. do.....	60 00	11 mos. 30 days..	718 06
Albion M. Ransdell.....	do. do.....	50 00	9 months.....	450 00
do. do.....	do. do.....	60 00	2 mos. 24 days...	106 45
Herbert A. Kinsley.....	do. do.....	50 00	1 year.....	600 00
George A. Woodbury...	do, do.....	50 00	11 mos. 24 days...	588 71
Herbert W. Knight.....	do. do.....	50 00	11 mos. 24 days...	588 71
do. do.....	do. Extra.....	50 00	7 days.....	11 52
James Irwin.....	do. do.....	50 00	6 months.....	300 00
Fred A. Weeks.....	do. do.....	50 00	5 mos. 18 days...	280 00
Henry C. Deering.....	do. do.....	35 00	1 mo. 16 days.....	54 60
do. do.....	do. do.....	41 67	10 months.....	416 22
Manley D. Tibbetts.....	do. do.....	41 67	5 mos. 18 days...	233 85
do. do.....	do. do.....	50 00	6 mos. 5 days.....	308 33
Manley A. Gardner.....	do. do.....	41 67	6 mos, 20 days...	276 90
do. do.....	do. do.....	50 00	5 mos. 14 days...	256 45
do. do.....	do. Extra.....	50 00	2 days.....	3 28
Edward W. Wells.....	Watchman.....	41 67	1 mo. 6 days.....	50 00
do. do.....	do. Extra.....	41 67	3 days.....	4 18
Fred G. Clowes.....	do.....	35 00	2 mos. 11 days...	81 74
do. do.....	do. Extra.....	35 00	4 days.....	4 52
Ernest L. Hilt.....	do.....	41 67	1 year.....	500 04
do. do.....	do. Extra.....	41 67	10 days.....	13 92
Frank A. Crosby	do.....	41 67	1 year.....	500 04

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STATE PRISON AND PROVIDENCE COUNTY JAIL.—*Continued.*

Names.	*Offices.*	*Rate.*	*Time.*	*Amount.*
Frank A. Crosby	Watchman Extra	41 67	18 days	18 00
John F. Richardson	do	60 00	5 mos. 28 days	346 00
do. do	do	65 00	6 mos. 7 days	405 17
Gustave Duhamil	do	35 00	4 mos. 20 days	162 58
do. do	do. Extra	35 00	10 days	11 48
James A. Curtis	do.	41 67	4 mos. 15 days	186 84
do. do	do	50 00	7 mos. 9 days	364 14
Augustus McLean	do	35 00	3 months	105 00
do. do	do. Extra	35 00	6 days	6 90
do. do	do	41 67	9 months	375 03
do. do	do. Extra	41 67	20 days	27 80
George A. Rice	do	35 00	1 mo. 12 days	49 00
do. do	do. Extra	35 00	2 days	2 26
James Armstrong	do	35 00	3 mos. 7 days	113 17
do. do	do	35 00	7 days	7 98
Edmund R. Greene	do	35 00	10 mos. 22 days	377 50
do. do	do. Extra	35 00	22 days	25 18
Rufus W. Partridge	School Officer	16 00	7 months	112 00
Almer J. Davis	do. do	Per hour 25	296 hours	74 00

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SOCKANOSSET SCHOOL FOR BOYS.

Names.	Offices.	Rate.	Time.	Amount.
		Per year.		
Elmer Butterfield	Deputy Supt.	$ 1,500 00	1 year	$ 1500 00
		Per month.		
Ezekiel E. Gardner	Clerk	70 00	1 year	840 00
Laura B. Durfee	Supt's. Clerk	25 00	10 mos. 4 days	258 33
Edith P. Gardner	do. do.	25 00	1 mo. 25 days	45 83
Horace C. Marden	Overseer	50 00	11 mos. 10 days	566 67
Doty E. Sheldon	do	50 00	10 mos. 5½ days	509 17
Wesley Kenney	do	50 00	1 year	600 00
John Goodell	do	55 00	1 year	660 00
George W. King	do	55 00	1 year	660 00
James H. Lewis	Supply Overseer	35 00	20 days	23 33
Fred E. Adams	Overseer	50 00	1 year	600 00
Dwight S. Austin	Supply Overseer	50 00	2 mos. 8½ days	114 17
George C. Campbell	Relief Officer	50 00	7 days	11 67
Dwight S. Austin	Watchman	40 00	9 mos. 22 days	389 33
Niles Wescott	Supply Watchman	40 00	2 mos. 28 days	117 33
Evelyn F. Austin	Teacher	25 00	1 year	300 00
Clara L. Maddocks	do	25 00	11 mos. 20 days	291 67
Bernice E. Whitehouse	do	25 00	7 mos. 28 days	198 33
Leutner C. Hatch	do	25 00	1 year	300 00
Nellie F. McNeill	do	25 00	1 year	300 00
H. Mabel Stearns	do	25 00	1 year	300 00
Mabel R. L. Dawley	do	25 00	4 months	100 00
Susie E. Davis	Substitute Teacher	25 00	11 days	9 17
Annie B. Marden	Family Mat'n Prim'y	20 00	1 year	240 00
Ethel L. Campbell	do. do. do.	20 00	7 days	4 67
Lizzie H. Sheldon	do. do. No. 1	20 00	1 year	240 00
Edith H. Pratt	do. do. No. 2	20 00	3 mos. 4 days	62 67
Leola S. Adams	do. do. No. 2	20 00	8 mos. 10 days	166 67
Bernice E. Whitehouse	Relief do. do	20 00	16 days	10 66
Lura K. Goodell	do. do, No. 3	20 00	1 year	240 00
Mary L. Whitten	do. do. No. 4	20 00	1 year	240 00
Alice R. Boring	do. do. Annex	20 00	1 year	240 00
do. do.	Relief Matron Main Building	20 00	1 mo. 2 days	21 84
Abbie Bradford	Housek'r Dep. Supt.	20 00	1 year	240 00
Margaret F. Kemp	Nurse & mat'rn Chapel	35 00	7 mos. 23 days	271 83
Rose Linden	do. do.	35 00	3 months	105 00
do. do.	do. do.	40 00	1 month	40 00

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SOCKANOSSET SCHOOL FOR BOYS.—*Continued.*

Name.	*Offices.*	*Rate.*	*Time.*	*Amount.*
Catherine Haslam	Supply Nurse do	30 00	17 days	17 00
Angie K. Stover	Matron, Sewing-room	30 00	1 year	360 00
Lillian C. Creasey	Matron Laundry	25 00	11 mos. 26 days	296 67
Flora A. Whitten	Matron Officers' Din. Room & Main Halls	20 00	8 mos. 15 days	70 00
Mabel R. Dawley	do. do.	20 00	8 mos. 20 days	73 33
Mathilda L. Boucher	do. do.	20 00	8 mos. 23 days	75 33
Minnie J. Studley	Cook for Officers	25 00	8 mos. 12 days	210 00
Lillian M. Douglas	do. do.	25 00	8 months	75 00
Jessie Howard	Supply do.	Per day. 1 00	7 days	7 00
Catherine Haslam	do. do.	1 00	11 days	11 00
Ella F. Fish	Night Nurse	2 50	3 days	7 50
Mabel Vaughn	do. do.	Per week. 15 00	21 days	45 00
Eliza Whipple	do. do.	15 00	28 days	81 43
John M. Whitten	Barn & Relief Officer	Per month. 45 00	1 year	540 00
Clarence W. Adams	Engineer	60 00	1 year	720 00
Charles E. Boucher	Instructor, Carpentry & Joinery	55 00	4 mos.	220 00
do. do.	do. do.	60 00	8 mos.	480 00
James A. Pratt	do. Machine shop	65 00	3 mos. 4 days	208 67
Howard H. Dawley	do. do.	55 00	7 mos. 20 days	421 67
James H. Lewis	do. Blacksmith'g	60 00	1 year	720 00
Edward W. Foster	do. Bricklaying & Plastering	60 00	1 year	720 00
Alphida Boutier	do. Shoemaking	60 00	1 year	720 00
Alfred G. Field	do. Printing	60 00	4 mos.	240 00
do. do.	do. do.	65 00	8 mos.	520 00
Malachy Kelly	Military Instructor	Per day. 2 00	66 days	132 00
Thomas A. Sammon	do. do.	2 00	38 days	76 00
Herbert D. Studley	Cook for Boys	Per month. 40 00	8 mos. 12 days	306 00
William J. Douglas	do. do.	40 00	3 mos.	120 00
Clarence Adams	Supply do. do.	40 00	11 days	14 67
Alphida Boutier	Supply Laundry	25 00	4 days	8 33

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OAKLAWN SCHOOL FOR GIRLS.

Name.	*Offices.*	*Rate.*	*Time.*	*Amount.*
		Per month.		
Clara F. Forbush	Deputy Supt	50 00	1 year	$ 600 00
Rose N. Marwood	Assistant Matron	30 00	1 year	360 00
Alice D. Reynolds	do. do.	25 00	11 mos. 25 days	295 83
Mildred A. Lawrence	do. do.	25 00	4 mos. 17 days	105 65
Susie B. Jackson	do. do.	25 00	2 mos. 22 days	67 74
Lela Higgins	do. do.	25 00	1 mo. 15 days	37 10
Margaret Finnigan	Supply do.	8 00	19 days	4 90
Maud S. Howard	Assistant do.	25 00	3 mos.	75 00
Agnes C. Smith	Teacher	25 00	1 year	300 00
Agnes B. McNaughton	do.	25 00	1 year	300 00

Respectfully submitted,

CHARLES H. PECKHAM, *Secretary.*

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STATISTICS

OF THE

State Workhouse and House of Correction.

	1906.	*Previously.*	*Total.*
Committed	710	21,612	22,322
Discharged	678	19,677	20,350
Escaped	31	1,366	1,397
Attempted to escape	1	26	27
Returned to Reform School	2	66	68
Transferred to Reform School	0	2	2
Transferred to Providence County Jail	0	59	59
†Died	10	139	149
	Men.	*Women.*	*Total.*
Number of inmates January 1, 1906	214	63	277
Committed during 1906	564	127	691
Escaped inmates recommitted	12	0	12
Attempted to escape	1	0	1
Transferred from Reform School	1	2	3
Returned from Providence County Jail	1	0	1
Committed for fine and costs	2	0	2
Total	795	192	987
Discharged during 1906	542	131	673
Escaped	31	0	31
Attempted to escape	1	0	1
Died	10	0	10
Returned to Reform School	0	2	2
Totals	584	133	717
Remaining January 1, 1907	211	59	270

†One man returned on probation died, not included in the above number.

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STATISTICS OF PERSONS COMMITTED.

SEX.

	1906.	*Previously.*	*Total.*
Men	581	16,359	16,940
Women	129	5,253	5,382
Totals	710	21,612	22,322

RACE.

	1906.	*Prev.*	*Total.*
White	690	20,921	21,611
Colored	19	682	701
Indians	1	9	10
Totals	710	21,612	22,322

BIRTHPLACE.

	1906.	*Prev.*	*Total.*		*1906.*	*Prev.*	*Total.*
United States	448	12,400	12,848	Portugal	2	7	9
Ireland	120	5,297	5,417	Italy	3	45	48
England	44	1,845	1,889	Mexico	0	1	1
Scotland	10	540	550	So. America	0	4	4
Wales	1	17	18	Cuba	0	2	2
Canada	47	766	813	East Indies	0	4	4
Nova Scotia	6	170	176	Calcutta	0	1	1
N. Brunswick	1	70	71	Cape Verd I's.	0	2	2
P. E. Island	1	4	5	St. Helena	0	1	1
N. Foundland	1	44	45	Western I's.	0	5	5
Germany	4	115	119	Africa	0	2	2
France	2	41	45	At Sea	0	5	5
Holland	0	3	3	Russia	4	11	15
Norway	0	11	11	West Indies	0	5	5
Sweden	12	114	126	Turkey	0	1	1
Switzerland	1	8	9	Finland	0	4	4
Prussia	0	10	10	Belgium	0	2	2
Spain	0	9	9	Syria	1	1	2
Austria	0	4	4	Poland	2	15	17
Armenia	0	2	2	Unknown	0	19	19
Greece	0	1	1				
Denmark	0	4	4	Totals	710	21,612	22,322

BIRTHPLACE OF PARENTS.

	1906.	*Prev.*	*Total.*
United States	148	4,905	5,053
United States and England	4	102	106
United States and Scotland	2	83	85
United States and Ireland	21	328	349
United States and British America	8	59	67
United States and West Indies	1	7	8

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BIRTHPLACE OF PARENTS.—*Continued.*

	1906.	*Prev.*	*Total.*
United States and Germany	0	13	13
United States and South America	0	2	2
United States and Portugal	0	4	4
United States and Poland	0	1	1
United States and Western Islands	0	2	2
United States and Sweden	0	1	2
United States and Italy	0	1	1
United States and St. Helena	0	3	3
United States and at Sea	0	2	2
Italy	3	46	49
England	53	1661	1714
England and Scotland	1	30	31
England and Ireland	9	232	241
England and Wales	1	10	11
England and Germany	0	3	3
England and France	0	8	8
England and British America	0	21	21
England and Sweden	0	1	1
England and at Sea	0	4	4
Scotland	10	509	519
Scotland and British America	2	10	12
Scotland and Spain	0	1	1
Scotland and at Sea	0	1	1
Ireland	328	11,710	12,038
Ireland and Spain	0	2	2
Ireland and British America	3	78	81
Ireland and Norway	0	1	1
Ireland and Scotland	4	141	145
Ireland and Wales	0	1	1
At Sea	0	1	1
Sweden	12	118	130
Germany	5	167	172
Germany and Switzerland	0	2	2
Germany and Ireland	0	13	13
Germany and British America	0	3	3
Germany and France	0	1	1
Greece	1	1	2
France	4	48	52
France and America	0	21	21
France and Ireland	0	4	4
France and Belgium	0	1	1
France and British America	3	7	10
France and West Indies	0	2	2
France and Scotland	0	1	1
British America	72	1068	1140
Wales	0	12	12

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BIRTHPLACE OF PARENTS.—*Continued.*

	1906.	*Prev.*	*Total.*
Prussia	0	8	8
Spain	0	6	6
Switzerland	1	10	11
Syria	1	1	2
Denmark	0	2	2
Denmark and England	0	1	1
East Indies	0	4	4
West Indies	0	6	6
Mexico	0	1	1
South America	0	4	4
Africa	0	1	1
Western Islands	0	9	9
Portugal	3	10	13
Portugal and Western Islands	0	1	1
Poland	2	17	19
Cape Verde Islands	0	2	2
Belgium	0	2	2
Austria	1	6	7
Norway	0	10	10
Russia	6	12	18
Russia and Ireland	0	3	3
Turkey	0	1	1
Finland	0	5	5
Armenia	0	2	2
Unknown	1	85	86
Total	710	21,612	22,322

AGES.

	1906.	*Prev.*	*Total.*
Under 20 years of age	25	1,103	1,128
From 20 to 30 years	146	5,664	5,810
" 30 " 40 "	213	6,420	6,633
" 40 " 50 "	153	4,745	4,898
" 50 " 60 "	108	2,481	2,589
" 60 " 70 "	54	924	978
" 70 " 80 "	11	226	237
Over 80 years	0	28	28
Unknown	0	26	26
Total	710	21,612	22,322

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OCCUPATIONS.

	1906.	Prev.	Total.		1906.	Prev.	Total.
Agents	3	0	3	Diesinkers	0	5	5
Actors	0	9	9	Draughtsmen	0	10	10
Artists	0	1	1	Dyers	4	65	69
Awning makers	0	1	1	Dressmakers	3	82	85
Bakers	2	123	125	Electricians	1	17	18
Barbers	9	186	195	Electroplaters	0	1	1
Basket makers	0	9	9	Engineers	2	70	72
Belt makers	2	8	10	Engravers	2	26	28
Bleachers	1	17	18	Engine turners	0	1	1
Boiler makers	5	50	55	Farmers	8	375	383
Bookeepers	0	68	68	File cutters,	0	45	45
Bookmakers	0	7	7	Fisherman	2	34	36
Boxmakers	0	17	17	Fireman	9	146	155
Brakemen	2	76	78	Furniture polishers	0	3	3
Brass workers	0	11	11	Gardners	4	79	83
Burnishers	0	2	2	Gas fitters	0	27	27
Bootblacks	1	1	1	Gas makers	0	1	1
Bartenders	1	5	6	Glass makers	0	2	2
Brokers	0	4	4	Grocers	0	4	4
Butchers	1	62	63	Glaziers	0	3	3
Bricklayers	2	57	59	Hair dressers	0	2	2
Brussels carpet weavers	0	10	10	Hair drawers	0	1	1
Bell hangers	0	2	2	Hatters	0	14	14
Blacksmiths	7	252	259	Harness makers	0	37	37
Button makers	0	1	1	Hotel keepers	0	7	7
Boatman	0	5	5	Hostlers	18	592	610
Bookbinders	0	2	2	Housewives	27	1,742	1,769
Brewers	0	1	1	Hackmen	2	38	40
Confectioners	0	3	3	Jewelers	23	526	549
Cabinet makers	0	22	22	Laborers	227	6,502	6,729
Carpenters	19	522	541	Loomfixers	0	27	27
Cigar makers	1	44	45	Lawyers	0	4	4
Clothes cleaners	0	2	2	Leather Japaners	0	2	2
Cloth examiners	1	0	1	Laundresses	5	212	217
Clerks	11	196	207	Lathers	0	29	29
Combmakers	0	4	4	Lecturers	0	1	1
Cooks	6	276	282	Linemen	2	2	4
Coopers	1	18	19	Machinists	15	478	493
Curriers	0	12	12	Masons	4	281	285
Cutler	0	1	1	Marble workers	0	14	14
Chasers	0	5	5	Mender china-ware	0	1	1
Carriage makers	0	7	7	Merchants	0	10	10
Coppersmith	0	3	3	Manufactures	0	8	8
Corndoctors	0	1	1				
Designers	0	3	3				

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OCCUPATIONS.—*Continued.*

	1906.	*Prev.*	*Total.*
Mill hands	113	2,926	3,039
Motormen	0	1	1
Moulders	7	229	236
Musicians	1	24	25
Music teachers	0	15	15
Meat cutters	0	21	21
Nurses	0	13	13
Oystermen	0	20	20
Painters	22	587	609
Peddlers	9	169	178
Photographers	1	15	16
Physicians	0	21	21
Piano polishers	1	1	2
Piano tuners	0	3	3
Polishers	0	23	23
Plumbers	4	37	41
Preachers	0	2	2
Printers	1	104	105
Pearl workers	0	1	1
Policemen	0	15	15
Plasterers	0	8	8
Paper makers	0	6	6
Paper hangers	0	1	1
Quarrymen	0	20	20
R. R. Conductors	0	7	7
Roofers	1	15	16
Rubber workers	2	66	68
Reed makers	0	2	2
Wax workers	0	2	2
Woodturners	3	1	4
Reporters	0	5	5
Salesmen	1	84	85
Slaters	0	4	4
Sailors	3	211	214
Saloon keepers	0	9	9
Sailmakers	0	10	10
School teachers	0	14	14
Seamstresses	1	153	154
Servants and waiters	57	1,623	1,680
Shipriggers	0	5	5
Ship carpenters	0	9	9
Silver polishers	0	22	22
Silversmiths	0	7	7
Steam pipe workers	3	38	41
Stone cutters	1	77	78
Soap makers	0	3	3
Stucco workers	0	5	5
Soldiers	0	7	7
Shoemakers	6	273	279
Stenographers	0	1	1
Silver platers	0	4	4
Tailors	1	141	142
Tailoresses	0	6	6
Tanners	0	10	10
Teamsters	33	704	737
Telegraphers	1	6	7
Tool makers	0	8	8
Tinsmiths	2	58	60
Upholsterers	2	15	17
White washers	0	21	21
Wheelwrights	0	11	11
Wiredrawers	0	7	7
Woolsorters	1	21	22
Unknown	0	53	53
Totals	710	21,612	22,322

TIME OF COMMITMENT.

	1906.	*Prev.*	*Total.*
January	75	1,381	1,456
February	41	1,185	1,226
March	53	1,423	1,476
April	54	1,455	1,509
May	60	1,727	1,787
June	64	1,878	1,942
July	79	2,331	2,410
August	59	2,330	2,389
September	62	2,126	2,188
October	54	2,098	2,152
November	48	1,858	1,906
December	61	1,820	1,881
Totals	705	21,612	21,322

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OFFENCES FOR WHICH COMMITTD.

	1906.	*Prev.*	*Total.*
Being a common drunkard	276	9,947	10,223
" vagrant	200	5,543	5,743
" (Under Chap. 224 Public Status)	0	520	520
" common prostitutes	4	1,122	1,126
" railers and brawlers	9	220	229
" disorderly persons	39	974	1,013
" cheats and swindlers	0	16	16
" sturdy beggars	33	995	1,028
Neglect to support family	76	676	752
Larceny	0	15	15
House breaking	0	6	6
Reveling	0	5	5
Assault	0	5	5
Night walking	22	485	507
Obstructing an officer	0	1	1
Maintaining a nuisance	0	9	9
Intent to rape	0	1	1
Transferred from Reform School (Incorrigible)	3	115	118
Returned from Reform School	0	1	1
Returned from the Providence County Jail	1	5	6
Wilfully escaping	12	710	722
Attempting to escape	1	25	26
Malicious mischief	0	1	1
Cruelty to animals	0	1	1
Exposure of person	0	2	2
Abandoning their children	2	14	16
Intoxication on violation of town ordinance	2	45	47
Lewd and wanton	30	153	183
Total	710	21,612	22,322

PLACES FROM WHICH COMMITTED.

	1906.	*Prev.*	*Total.*		*1906.*	*Prev.*	*Total.*
Providence	269	9,221	9,490	Smithfield	2	65	67
No. Providence	1	327	382	Westerly	8	375	383
Pawtucket	98	3,320	3,418	Coventry	1	72	73
Newport	53	1,247	1,300	Warren	17	390	407
Woonsocket	61	646	707	East Greenwich	2	141	143
Johnston	6	462	468	West Greenwich	0	10	10
East Providence	39	1,233	1,272	No. Kingstown	2	61	63
Cranston	26	873	899	So. Kingstown	3	117	120
Bristol	29	508	537	Scituate	3	42	45
Warwick	9	475	484	Glocester	2	45	47
Burrillvile	8	227	235	Tiverton	5	51	56
Lincoln	6	738	744	Narragansett	7	74	81

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PLACES FROM WHICH COMMITTED.—*Continued.*

	1906.	*Prev.*	*Total.*		*1906.*	*Prev.*	*Total.*
Exeter	0	8	8	Middletown	0	1	1
Barrington	4	30	34	Portsmouth	0	1	1
Foster	0	4	4	Charlestown	0	1	1
Richmond	0	7	7	Jamestown	0	4	4
No. Smithfield	0	15	15	Prov. County Jail	1	5	6
Hopkinton	0	10	10				
Cumberland	10	212	222	Total	710	21,612	22,322
Reform School	3	116	119				
Central Falls	85	483	518				

TERM OF SENTENCE.

	1906.	*Prev.*	*Total.*
Three months	0	2	2
Six "	544	16,860	17,404
Seven "	18	40	58
Eight "	0	124	124
Nine "	47	713	760
Ten "	0	65	65
Eleven "	0	4	4
Twelve "	86	2,890	2,976
Thirteen "	0	1	1
Fourteen "	0	2	2
Fifteen "	0	19	19
Sixteen "	0	1	1
Eighteen "	2	160	162
Two years	7	383	390
" " five months, six days	0	1	1
" " and six months	0	15	15
Three years	0	168	168
" " and six months	0	1	1
During minority (from Reform School)	3	109	172
Returned from Reform School	0	1	1
Returned from Providence County Jail	1	5	6
Fine and costs	2	46	48
Awaiting trial	0	2	2
Totals	710	21,612	22,322

RECOMMITMENTS.

Had been committed once	98
" " " twice	60
" " " three times	36
" " " four "	29
" " " five "	11
" " " six "	15
" " " seven "	17

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RECOMMITMENTS.—*Continued.*

Had been committed	eight	times	11
" " "	nine	"	6
" " "	ten	"	6
" " "	eleven	"	6
" " "	twelve	"	4
" " "	thirteen	"	1
" " "	fourteen	"	7
" " "	fifteen	"	1
" " "	sixteen	"	3
" " "	seventeen	"	3
" " "	eighteen	"	2
" " "	nineteen	"	5
" " "	twenty	"	1
" " "	twenty-one	"	1
" " "	twenty-two	"	1
" " "	twenty-three	"	1
" " "	twenty-four	"	1
" " "	twenty-eight	"	1
" " "	twenty-nine	"	1
" " "	thirty-eight	"	1
" " "	thirty-nine	"	1
" " "	never before		380
		Total	710

EDUCATIONAL STATISTICS.

Number of inmates in 1906 who can read and write	565
" " " " " who can read only	17
" " " " " who can neither read nor write	128
Total	710

SOCIAL CONDITION.

Married	296
Single	414
Total	710

RELIGION.

Protestants	221
Catholics	486
Jews	3
Total	710

Respectfully submitted,

JAMES H. EASTMAN, *Superintendent.*

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Report of the Warden of the State Prison.

To the Board of State Charities and Corrections:

The undersigned, Warden of the Rhode Island State Prison and keeper of the Providence County Jail, respectfully presents the following account of receipts and expenditures for the year ending December 31, 1906:

Expenditures	$ 67,774 36
Receipts	27,734 47
Excess of expenditures over receipts	40,039 89

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Number of convicts in prison, committed, discharged, pardoned, died, escaped, and returned, in each year, since the establishment of the institution in 1888:

YEAR.	In Prison.	Committed.	Discharged.	Pardoned.	Died.	Escaped.	Returned.
1888		5					
1889	5	6	2				
1840	9	9	3				
1841	15	13	2				
1842	26	7	6	2	1		
1843	24	13	10	3	1		
1844	23	6	5	2	2	1	
1845	19	8	5	2	1		
1846	19	8	5	3			
1847	19	11	5	3	1		
1848	21	8	2				
1849	27	14	4	5	2	3	3
1850	30	29	6	11			
1851	42	21	2	10	1	1	
1852	49	17	17	4			
1853	45	26	3	14			
1854	49	23	13	4	3		
1855	52	27	13	2	1		
1856	63	14	20	2	1		
1857	54	34	19	2			
1858	67	26	20		3	1	1
1859	70	23	18	3	5		
1860	67	29	27	1	1		
1861	67	30	18	3			
1812	85	18	28	5			
1863	60	12	20	4	1		
1864	47	10	13	2	1		
1865	41	22	11	3	1	1	1
1866	48	40	9	7			
1867	72	25	27	9	2		
1868	59	26	20	6			
1869	59	42	16	3	2	1	1
1870	80	25	25	5			
1871	75	26	31	2	3		
1872	65	30	16	5	1	2	
1873	71	33	26	1	1		1
1874	77	24	29	3	2		
1875	67	24	19	3	3		
1876	56	56	22	4			
1877	86	51	34	3	4		
1878	92	47	37	2	2		
1879	98	56	31	9	2		
1880	112	25	43	4	3	2	2
1881	82	30	29	1	1		
1882	81	46	26	3	4		
1883	94	39	31	6		1	
1884	95	65	31	5	5		
1885	114	53	43	2	3	1	1
1886	129	46	62	3			
1887	105	42	45	6	3	1	
1888	92	69	39	2			
1889	120	52	60	4	2		
1890	136	49	78	4			
1891	103	57	50	1	2		
1892	112	54	39	3			
1893	124	90	38	2	3	1	
1894	170	43	78	5			
1895	135	83	61	1	1		
1896	155	97	49				
1897	198	69	78		3		
1898	181	69	77		1		1
1899	173	80	64	2	1		
1900	195	74	72	2	2		
1901	198	61	64	7	5		
1902	178	65	51	3	2		
1903	187	68	61	5	1		
1904	188	72	72	7			
1905	176	56	81	2	5		
1906	144	45	64	4	2		
1907	119						

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Age, sex, etc., of persons committed to the State Prison, since its first institution in 1888:

From 20 years of age	411	From 50 years to 60	95
" 20 " to 30	1275	" 60 " " 70	31
" 30 " " 40	507	Over 70	4
" 40 " " 50	267		
		Total	2590

Nativity of persons committed to the State Prison, since its first institution in 1888:

Maine	87	Santa Cruz	1
New Hampshire	19	Peru	1
Vermont	22	England	120
Massachusetts	298	Ireland	243
Rhode Island	1086	Scotland	15
Connecticut	108	Wales	1
New York	160	Gibralter	1
New Jersey	14	Germany	22
Pennsylvania	35	Austria	4
Delaware	2	France	10
Maryland	13	Italy	72
District of Columbia	16	Sweden	18
Ohio	11	Switzerland	2
Illinois	9	Denmark	1
Kentucky	5	Holland	1
Tennessee	1	Spain	1
Arkansas	2	Turkey	3
Wisconsin	7	West Indies	7
North Carolina	8	Barbadoes Islands	1
South Carolina	5	Mexico	1
Mississippi	2	Russia	5
Louisiana	2	California	6
Florida	2	Nebraska	1
Virginia	46	Missouri	2
Texas	3	Idaho	1
Michigan	2	Alabama	1
Iowa	2	Western Islands	3
Georgia	7	Belguim	1
Poland	2	Armenia	5
Australia	2	Prince Edward Island	1
Nova Scotia	16	Cape Verde Island	6
Newfoundland	3	Norway	1
New Brunswick	8	Finland	2
Canada	78	Azores Islands	1
Bermuda	1	Total	2590

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Crimes for which persons have been committed since 1888:

Accessory to murder	1
Abortion	2
Adultery	11
Arson	5
Assault and battery	32
Attempt to burn dwelling house	2
Attempt to burn barn	1
Attempt to have carnal knowledge of a girl under 14 years of age	1
Attempt to have carnal knowledge of a girl under 16 years of age	9
Assault and larceny	2
Assault with intent to kill	55
Assault with a dangerous weapon	157
Assault with intent to commit rape	64
Assault with intent to commit sodomy	2
Assault with intent to rob	17
Assault on the warden	2
Assault against nature	1
Being common gambler	1
Bigamy	31
Breaking and entering a bank	5
Breaking and entering a church	7
Breaking and entering a hen house	2
Breaking and entering a school house	6
Breaking and entering a vessel	2
Breaking and entering an engine-house	1
Breaking and entering an office	8
Breaking and entering a barn	12
Breaking and entering at night and larceny	12
Burglary	131
Breaking and entering shop at night	13
Breaking a barn at night and larceny	6
Breaking and entering a post office	8
Breaking and entering at night and larceny	9
Breaking and entering dwelling and larceny	6
Breaking and entering	2
Breaking parish house at night and larceny	1
Breaking tool house at night and larceny	1
Breaking and entering shop with intent to commit larceny	1
Breaking and entering shop at night and larceny	89
Breaking shop at night and larceny	58
Breaking shop in day-time and larceny	6
Breaking a store house in day-time and larceny	1
Breaking shop and larceny	4
Breaking and entering a building in day-time and larceny	3
Breaking and entering and larceny	26
Breaking and entering shop in day-time and larceny	8
Breaking and entering club-room at night	1
Breaking and entering shop in day-time	1
Breaking and entering dwelling-house in day-time	38
Breaking building at night and larceny	6
Breaking dwelling-house in day-time and larceny	27
Breaking and entering dwelling-house in day-time and larceny	31
Breaking and entering dwelling-house in the day-time with intent to commit larceny	1
Breaking an unfinished dwelling in day-time and larceny	1
Breaking and entering unoccupied house at night	6
Breaking and entering unoccupied house at night and larceny	1
Breaking and entering unoccupied dwelling in day time and larceny	4
Burning a building	1
Conspiracy	2
Conveying tools to prisoners	3
Counterfeiting	2
Circulating obscene literature	1
Carnally knowing a girl under 14 years of age	4
Carnally knowing a girl under 16 years of age	31

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Crimes for which persons have been committed since 1888:—

Continued.

Defacing a building	2	Inciting another to commit perjury	1
Destroying a dam	1	Inciting another to commit larceny	1
Exhibiting obscene literature	1	Incest	1
Embezzlement	30	Incestuous adultery	1
Embezzlement of letters from the post-office	3	Indecent assault and battery	1
Entering shop at night and larceny	3	Indecent exposure of person	9
Entering a barn at night and larceny	1	Larceny	493
Entering dwelling house in day-time	11	Larceny and receiving stolen goods	3
Entering dwelling-house in day time and larceny	38	Larceny from the person	108
Entering dwelling-house in day-time with intent to commit larceny	1	Malicious mischief	4
Entering building in day time and larceny	1	Murder	57
Entering unoccupied house at night and larceny	1	Manslaughter	58
Entering dwelling house at night and larceny	5	Mingling poison with drink	3
Entering dwelling house at night to commit larceny	22	Obtaining goods under false pretenses	5
Entering dwelling-house at night and larceny	2	Obstructing a railroad	4
Entering dwelling in day-time and larceny	7	Perjury	15
Entering dwelling with intent to commit murder	1	Passing counterfeit coin	6
Entering shop in day-time and larceny	4	Rape	17
Escaping prison	3	Receiving stolen goods	26
False pretenses	9	Robbery	92
Forgery	84	Receiving a jail prisoner	1
Forging and uttering	2	Sending obscene matter through U. S. mail	2
False representation	6	Setting fires	31
Fraudulently taking letter from post-office	1	Setting fire to lumber	1
Falsely changing and altering a certain money order	1	Setting fire to and burning a barn	1
House breaking	58	Sodomy	1
Having and passing counterfeit money	43	Store breaking	251
Horse stealing	2	Tearing open and injuring a certain mail bag	1
		Treason	1
		Unlawful cohabitation	2
		Using mail for obscene publication	1
		Uttering a forged order	4
		Uttering counterfeit coin	3
		Violating a pension law	3
		Violating the U. S. Mail laws	3
		Violating the U. S. naturalization laws	2
		Wounding a horse	1
		Total	2590

Average number of convicts in 1906:

Males.	*Females.*	*Total.*
$122\frac{213}{365}$	0	$122\frac{213}{365}$

There were in Prison Dec. 31st, 1906:

Males.....119	White.....108	Natives, U. S.....79
Females..... 0	Colored.....11	Foreigners.....40
Total.....119	Total.....119	Total.....119

ANDREW J. WILCOX, *Warden.*

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Report of the Jailer of the Providence County Jail.

IN JAIL JANUARY 1, 1906.

	Males.	Females.	Totals.
By the State	242	24	266
" " City of Providence	1	0	1
" " " " Pawtucket	3	0	3
" " " " Central Falls	4	1	5
" " Town of Lincoln	4	1	5
" " " " East Providence	3	0	3
" " " " Burrilville	1	0	1
" " " " No. Providence	1	0	1
" " " " No. Smithfield	1	0	1
" " United States	2	0	2
" " Debtors	6	0	6
	268	26	294

COMMITTED DURING THE YEAR.

	Males.	Females.	Totals.
By the State	1162	97	1259
" " " escaped returned	4	0	4
" " City of Providence	22	0	22
" " " " Pawtucket	46	2	48
" " " " " escaped returned	1	0	1
" " " " Woonsocket	9	1	10
" " " " Central Falls	6	3	9
" " Town of Lincoln	7	0	7
" " " " Cumberland	3	0	3
" " " " East Providence	89	6	95
" " " " " escaped returned	1	0	1
" " " " Warwick	22	5	27
" " " " Cranston	12	2	14
" " " " Gloucester	1	0	1
" " " " Burrillville	4	0	4
" " " " No. Providence	6	1	7
" " " " Coventy	4	0	4
" " " " Smithfield	7	0	7
" " " " Scituate	1	0	1
" " " " No. Smithfield	4	0	4
" " " " East Greenwich	2	1	3
" " United States	28	0	28
" " Debtors	55	1	56
	1496	119	1615

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DISCHARGED DURING THE YEAR.

	Males.	Females.	Totals.
By the State	1107	108	1215
" " " Escaped	5	0	5
" " " Died	1	0	1
" " " Transferred to House of Correction	1	0	1
" " " Sentenced to State Prison	30	0	30
" " " Transferred to Boys' School	23	0	23
" " " " " " State Hospital	1	0	1
" " City of Providence	18	0	18
" " " " Pawtucket	46	2	48
" " " " " Escaped	1	0	1
" " " " Woonsocket	8	1	9
" " " " Central Falls	10	4	14
" " Town of Lincoln	10	1	11
" " " " Cumberland	3	0	3
" " " " East Providence	89	6	95
" " " " " " Escaped	1	0	1
" " " " Warwick	21	3	24
" " " " Cranston	11	1	12
" " " " " Escaped	1	0	1
" " " " Burrillville	5	0	5
" " " " No. Providence	6	1	7
" " " " Coventry	4	0	4
" " " " Smithfield	6	0	6
" " " " Scituate	1	0	1
" " " " No. Smithfield	4	0	4
" " " " East Greenwich	2	1	3
" " United States	28	0	28
" " Debtors	54	1	55
	1497	129	1626

REMAINING, DECEMBER 31, 1906.

	Males.	Females.	Totals.
By the State	240	13	253
" " City of Providence	5	0	5
" " " " Pawtucket	3	0	3
" " " " Woonsocket	1	0	1
" " Town of Lincoln	1	0	1
" " " " East Providence	3	0	3
" " " " Warwick	1	2	3
" " " " Cranston	0	1	1
" " " " Gloucester	1	0	1
" " " " No. Providence	1	0	1
" " " " Smithfield	1	0	1
" " " " No. Smithfield	1	0	1
" " United States	2	0	2
" " Debtors	7	0	7
	267	16	283

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AVERAGE NUMBER IN JAIL DURING 1906.

	Males.	Females.	Totals.
By the State	256 146/365	23 76/365	280 37/365
" " City of Providence	2 22/365	0	2 22/365
" " Various Towns	17 121/365	1 109/365	16 118/365
" " State Prison	122 214/365	0	122 214/365
" " United States	4 14/365	0	4 14/365
" " Debtors	3 209/365	3/365	3 204/365
	407 10/365	24 278/365	431 288/365

COMMITTED ON SENTENCE BY THE STATE FOR:

	Males;	Females.	Totals.
Assault	210	7	217
Assault and battery	1	0	1
Assault with dangerous weapon	15	0	15
Adultery	6	6	12
Attempt to pass counterfeit money	1	0	1
Bastardy	2	0	2
Breaking and entering	24	0	24
Breaking and entering shop at night	5	0	5
Breaking and entering and larceny	1	0	5
Breaking and entering in day time and larceny	1	0	1
Breaking and entering freight car	1	0	1
Breaking and entering barn at night and larceny	1	0	1
Breaking and entering dwelling house in day-time and larceny	2	0	2
Carrying concealed weapon	31	0	31
Cruelty to animals	21	2	23
Common drunkard	1	0	1
Carnal knowledge	3	0	3
Defacing building	43	10	53
Destroying property	4	0	4
Defacing property	2	0	2
Entering dwelling house and attempt to commit larceny	1	0	1
Entering barn at night and larceny	2	0	2
Embezzlement	11	0	11
Exposure of person	1	0	1
Evading fare	6	0	6
Escaping jail	7	0	7
Fast driving	2	0	2
Fornication	13	16	29
False pretences	3	0	3
Keeping liquor for sale	4	0	4
Keeping common nuisance	5	2	7

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COMMITED ON SENTENCE BY THE STATE FOR:—*Continued.*

	Males.	*Females.*	*Totals.*
Larceny	35	0	35
Larceny from the person	1	0	1
Neglect to send child to school	1	0	1
Malicious mischief	9	0	9
Neglect to provide for family	1	0	1
Obstructing officer	2	0	2
Peddling without license	2	0	2
Playing cards on Sunday	1	1	2
Receiving stolen property	8	1	9
Refusing to pay for meals	6	0	6
Selling liquor to minor	1	0	1
Selling liquor	4	4	8
Stealing hens	8	0	8
Theft	291	16	307
Trespass on R. R.	43	0	43
Throwing glass in street	6	1	7
Threats	35	0	35
Throwing stones at R. R. train	1	0	1
Theft of growing fruit	2	0	2
Violation of Chinese Exclusion Act	2	0	2
	889	66	955

STATE SENTENCES.

	Males.	*Females.*	*Totals.*
Fined $1 00	1	0	1
" 2 00	13	0	13
" 3 00	5	0	5
" 5 00	86	9	95
" 7 00	4	0	4
" 8 00	1	0	1
" 10 00	139	23	162
" 15 00	90	7	97
" 15 00 and bonds	1	0	1
" 20 00	187	6	193
" 25 00	36	2	38
" 30 00	10	0	10
" 40 00	6	1	7
" 50 00	11	0	11
" 75 00	2	0	2
" 100 00	2	0	2
" 150 00	1	0	1
" 250 00	1	0	1
Imprisoned 10 days	0	1	1
" 20 "	1	0	1
" 10 " Fined $20 00	6	4	10

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STATE SENTENCES—*Continued.*

	Males.	Females.	Totals.
Imprisoned 30 days	82	3	85
" 30 " Fined $50.00	2	0	2
" 30 " " $100.00	5	1	6
" 40 "	1	0	1
" 59 "	1	1	2
" 60 "	30	0	30
" 90 "	12	1	13
" 180 "	1	0	1
" 90 " " $20.00	2	0	2
" 90 " " $100.00	1	0	1
" 3 months	31	1	32
" 3 " " $1.00	1	0	1
" 3 " " $20.00	6	0	6
" 3 " " $50.00	1	0	1
" 3 " " $100.00	2	0	2
" 4 "	17	1	18
" 4 " " $100.00	0	1	1
" 5 "	2	0	2
" 6 "	36	3	39
" 6 " Bonds	3	0	3
" 6 " U. S.	1	0	1
" 9 "	13	0	13
" 10 "	2	0	2
" 10 " Bonds	1	0	1
" 11 "	3	0	3
" 11 " Bonds	1	0	1
" 12 "	1	0	1
" 1 year	28	0	28
" Bonds to pay $2.00 per week.	1	0	1
	389	66	955

COMMITTED ON SENTENCE BY THE CITY OF PROVIDENCE.

	Males.	Females.	Totals.
Drunkenness	9	0	9
Revelling	13	0	13
	22	0	22

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CITY OF PROVIDENCE SENTENCES.

	Males.	Females.	Totals.
Fined $1 00	8	0	8
" 5 00	1	0	1
" 7 00	4	0	4
" 10 00	6	0	6
" 15 00	1	0	1
" 20 00	2	0	2
	22	0	22

COMMITTED ON SENTENCE BY OTHER CITIES AND TOWNS.

	Males.	Females.	Totals.
Drunkenness	178	18	191
Revelling	50	3	53
	228	21	244

SENTENCES BY OTHER CITIES AND TOWNS.

	Males.	Females.	Totals.
Fined $2 00	149	17	166
" 3 00	7	0	7
" 4 00	2	0	2
" 5 00	84	3	87
" 7 00	2	0	2
" 10 00	12	1	13
" 15 00	2	0	2
" 20 00	7	0	7
Imprisoned 10 days	6	0	6
" 30 "	1	0	1
" 1 month	1	0	1
	223	21	244

NATIVITY OF PERSONS COMMITTED ON SENTENCE.

Maine	19	New York	61
New Hampshire	8	New Jersey	6
Vermont	5	Pennsylvania	17
Massachusetts	157	Delaware	1
Rhode Island	366	Maryland	6
Connecticut	47	District of Columbia	6

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NATIVITY OF PERSONS COMMITTED ON SENTENCE:—*Continued.*

Virginia	18	Ohio	5
West Virginia	1	Illinois	3
Kentucky	2	Michigan	1
No. Carolina	9	Iowa	1
So. Carolina	6	California	4
Georgia	3	Colorado	1
Alabama	1	Montana	1
Louisiana	1	Nebraska	1
Texas	2	Mexico	1
Total, United States	760		
England	59	Russia	10
Ireland	128	Poland	4
Scotland	18	Prince Edward Island	1
Wales	2	Switzerland	1
Canada	83	Armenia	1
Nova Scotia	12	Cape de Verde Islands	11
New Brunswick	4	Western Islands	2
France	5	Barbadoes	1
Germany	9	West Indies	6
Sweden	17	Syria	1
Portugal	3	Greece	1
Italy	71	Australia	1
Austria	10	Africa	1
Norway	4		
Total, Foreign Countries	461		

AGES, SEX, ETC., OF PERSONS COMMITTED ON SENTENCE.

Under 20 years of age	147
Between 20 " " " and 30	440
" 30 " " " " 40	307
" 40 " " " " 50	207
" 50 " " " " 60	92
" 60 " " " " 70	26
" 70 " " " " 80	2
Total	1221

Males	1135	White	1094	Married	422
Females	86	Colored	127	Single	799
Totals	1221		1221		1221

Total number of persons who can read and write	998
" " " " " " " but not write	25
" " " " " " neither read nor write	208
Total	1221

Total number persons committed	1615
" " " sentenced	1221

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NATIVITY OF PARENTS.

Fathers.		*Mothers.*	
United States	389	United States	384
England	75	England	74
Ireland	389	Ireland	389
Scotland	30	Scotland	32
Wales	3	Wales	2
Canada	125	Canada	132
Nova Scotia	14	Nova Scotia	13
New Brunswick	2	New Brunswick	2
France	6	France	7
Germany	18	Germany	18
Sweden	17	Sweden	18
Portugal	8	Portugal	9
Italy	79	Italy	79
Norway	3	Norway	3
Austria	10	Austria	9
Russia	12	Russia	12
Poland	4	Poland	4
Armenia	1	Armenia	1
West Indies	8	West Indies	9
Finland	1	Finland	1
Prince Edward Island	1	Prince Edward Island	2
Cape de Verde Islands	12	Cape de Verde Islands	12
Spain	4	Switzerland	1
Switzerland	1	Western Islands	2
Western Islands	3	Cuba	1
Cuba	1	Barbadoes	1
Barbadoes	1	Syria	1
Syria	1	Greece	1
Greece	1	Australia	1
Australia	1	Africa	1
Africa	1		
Total	1221	Total	1221

AVERAGE OF PARENTS.

Fathers.		*Mothers.*	
Americans	$31\frac{66}{100}$	Americans	$31\frac{44}{100}$
Foreigners	$68\frac{34}{100}$	Foreigners	$68\frac{56}{100}$

ANDREW J. WILCOX, *Jailer.*

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.

Number.	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
519	Robert Crowe, U. S...	65	Ireland	Murder	March 1, 1867	Life		
1067	Moses Grinnell	93	Rhode Island	Murder	July 5, 1882	Life		
1264	Allen W. Dorsey	47	Pennsylvania	Murder	July 1, 1886	Life		
1446	Dennis Murphy, alias "Spiker"	37	Connecticut	Murder	July 2, 1889	Life		
1544	James Ryan	38	Rhode Island	Robbery	March 21, 1891	10 years		
	Same		Same	Breaking and entering shop at night and larceny	March 21, 1891	3 years		
	Same		Same	Assault on Prison Officer and attempt to escape	June 22, 1898	10 yrs. add	April 21, 1906	Pardoned
1573	James F. Lynn	47	Rhode Island	Murder	Oct. 29, 1891	Life		
1604	John Corrigan	32	Rhode Island	Robbery	June 28, 1892	22½ years		
1758	Manuel Lewis	49	Western Islands	Rape	Oct. 22, 1894	15 years		
1847	Lawrence C. Keegan	62	Rhode Island	Murder	Jan. 22, 1896	Life		
1933	Pietro Marcello	63	Italy	Robbery	Jan. 6, 1897	15 years		
1934	Luca Marinello	48	Italy	Robbery	Jan. 6, 1897	15 years		
1935	Luigi Lenardo	51	Italy	Robbery	Jan. 6, 1897	15 years		
1965	Martin Dalton	34	Massachusetts	Murder	June 26, 1897	Life		
1997	Willard Gallagher	26	Rhode Island	Robbery	Dec. 16, 1897	10 years	July 21, 1906	514 days gained
2000	John Murphy	47	Rhode Island	Murder	Jan. 20, 1898	Life		
2019	Henry Thebault	45	Massachusetts	Burglary	June 16, 1898	10 years		
2071	Samuel Lindsey	45	Virginia	Murder	March 20, 1899	Life		
2073	Henry Clarke	40	New York	Burglary	March 20, 1899	10 years		
2085	Charles H. Hobson	49	Massachusetts	Carnally knowing a girl under 16 years of age	March 22, 1899	8 years	Feb. 9, 1906	407 days gained
2115	Martin L. Mowry	69	Rhode Island	Murder	July 15, 1899	Life		
2131	Samuel R. Owen	64	Connecticut	Murder	Oct. 16, 1899	Life		
2136	"Arthur G. Webster" alias "Wm. Stanley" alias "St. Paul Tip"	30	New York	Robbery	Nov. 9, 1899	25 years		
2139	James Maxwell alias "Jas. Brennan" alias "Milwaukee Kid"	28	New York	Robbery	Nov. 14, 1899	15 years		
2140	Joseph Curran alias "Troy Joe"	30	New York	Robbery	Nov. 14, 1899	13 years		
2148	Thomas Powell	51	Massachusetts	Having Carnal knowledge of a girl under 16 years of age	Nov. 24, 1899	10 years		
	Same		Same	Assault	Nov. 24, 1899	1 year		

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number.	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
2158	John Rogers	49	Pennsylvania	Burglary	Dec. 22, 1899	10 years		
2158	Lafayette Bell	57	North Carolina	Carnally knowing a girl under 16 years of age	Jan. 4, 1900	10 years		
2164	Frank Allen	30	Rhode Island	Burglary	Mar. 17, 1900	18 years		
	Same		Same	Same offence	Mar. 17, 1900	18 years		
	Same		Same	Same offence	Mar. 17, 1900	18 years		
2184	Andrew Weeden	30	Rhode Island	Murder	June 11, 1900	Life		
2191	Simon Massell	37	Russia	Murder	June 16, 1900	Life		
2226	Leon E. Merrill	30	Massachusetts	Having carnal knowledge	Dec. 17, 1900	7 years	Dec. 23, 1906	360 days gained
2238	William Sutler	28	Maryland	Burglary	Jan. 30, 1901	7 years	Apr. 19, 1906	Pardoned
2244	Edward J. Werner	40	Ohio	Burglary	Mar. 20, 1901	7 years		
2254	Pedro Jaswell	35	Italy	Murder	May 7, 1901	Life	July 7, 1906	Pardoned
2256	Edward Thompson	38	Rhode Island	Breaking and entering at night and Larceny	May 27, 1901	2 years		
	Same		Same	Breaking and entering shop at night and larceny	May 27, 1901	3 yrs. add.		
	Same		Same	Larceny	June 20, 1901	18 months	Jan. 3, 1906	95 days gained
2283	Frank B. Vincento	32	Cape Verde I's.	Attempt to carnally know a girl under 16 years of age	June 21, 1901	6 years	Aug. 21, 1906	305 days gained
2287	James Cole	47	Connecticut	Carnally knowing a girl under 16 years of age	Oct. 3, 1901	10 years		
2287	Edwin A. Greene	22	Massachusetts	Breaking barn at night and Larceny	Dec. 30, 1901	3 years		
	Same		Same	Burglary	Dec. 12, 1901	6 years		
	Same		Same	Entering dwelling at night and Larceny	Dec. 30, 1901	3 years		
2319	Xavier Couchane	39	Canada	Attempting carnal knowledge of a girl under 16 years of age	June 17, 1902	5 years	Oct. 24, 1906	237 days gained
2320	Thomas Gray	41	Massachusetts	Rape	June 20, 1902	10 years		
2340	Wilfred Laurier alias "Wilfred Laurie"	28	Canada	Assault with intent to rape	Oct. 27, 1902	7 years		
2355	Louis Caipio	49	Italy	Having carnal knowledge of a girl under 16 years of age	Dec. 17, 1902	10 years		
2369	John Devery	41	New York	Breaking, entering and larceny	Mar. 31, 1903	4 years	Oct. 16, 1906	158 days gained
2370	R. William Reade	48	Massachusetts	Break'g, entering and larceny	Mar. 31, 1903	8 years		
2373	Peter Smith, Jr.	32	Rhode Island	Break'g, entering and larceny	Apr. 22, 1903	5 years		
2385	Henry M. Young	49	Rhode Island	Larceny	Oct. 5, 1903	4½ years		

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number.	NAME.	Age.	Nativity.	CRIME.	Time of Commitment	Term of Sentence.	Discharge.	MANNER OF DISCHARGE.
2386	Charles McWeeny	40	Rhode Island	Larceny	Oct. 8, 1906	3 years	July 7, 1906	94 days gained
2387	William Brooks	26	Virginia	Robbery	Oct. 12, 1906	5 years		
2391	James H. Dolan	37	Massachusetts	Entering dwelling at night	Oct. 12, 1906	2½ years	Feb. 6, 1906	66 days gained
2399	George Elliott	42	Rhode Island	Embezzlement	Oct. 19, 1906	3 years	July 16, 1906	96 days gained
2405	Frederick Hoffman	55	Germany	Manslaughter	Dec. 1, 1906	10 years		
2408	Theodore R. Roosevelt alias "Thos. Ross"	26	Missouri	Breaking dwelling in day-time and larceny	Dec. 21, 1906	2 years		
	Same		Same	Larceny	Dec. 21, 1906	1 yr. add.	Nov. 9, 1906	10 days gained
2416	Guissepi Mannino	28	Italy	Robbery	Dec. 30, 1906	5 years		
2419	Joseph Kirwan	29	Rhode Island	Larceny from the person	Jan. 5, 1904	3½ years		
2421	Thomas F. Sandland	26	South Carolina	Forgery	March 21, 1904	2 years	Feb. 9, 1906	41 days gained
2422	Henri Bellair alias "Henry Williams	31	Canada	Bigamy	March 21, 1904	2 years	Feb. 7, 1906	43 days gained
2423	William Conley	21	Rhode Island	Falsely representing himself to be the agent of another	March 21, 1904	2 years	Feb. 14, 1906	36 days gained
2432	George Nickerson	23	Massachusetts	Entering church in day-time and larceny	March 28, 1904	2½ years	July 18, 1906	67 days gained
2433	William Monahan	30	Rhode Island	Robbery	March 28, 1904	7 years		
	Same		Same	Breaking, entering shop at night and larceny	March 28, 1904	2 years		
2434	Edward A. Rourke	23	Rhode Island	Assault with intent to kill	March 28, 1904	3 years	Dec. 25, 1906	94 days gained
2437	Emanuel Johnson	25	Connecticut	Assault with intent to commit rape	March 29, 1904	4 years		
2438	John Swanson	24	New Hampshire	Breaking, entering shop in night time and larceny	March 29, 1904	2 years	Feb. 17, 1906	41 days gained
2439	Francis Connelly	19	Rhode Island	Breaking, entering shop in night time and larceny	March 29, 1904	2 years		
	Same		Same	Larceny, and receiving stolen goods	March 29, 1904	1 year	Mar. 9, 1906	21 days gained
2440	George Washington	23	Rhode Island	Larceny from the person	March 30, 1904	3 years	Dec. 25, 1906	96 days gained
2443	Edward Jones	35	Rhode Island	Breaking, and entering a certain office of the N. Y. N. H. & H. R. R. Co.	March 31, 1904	3½ years		
2444	Charles Quigley	31	New Brunswick	Murder	March 31, 1904	Life		
2445	Max Epstein	25	Austria	Manslaughter	April 4, 1904	8 years	Apr. 19, 1906	Pardoned
2446	Charles Kemple	23	West Virginia	Breaking, and entering shop at night time and larceny	April 7, 1904	15 months		

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
2446	Charles Kemple	23	West Virginia	Breaking, entering shop in day time and larceny	June 22, 1904	1 yr. add.	June 25, 1906	Exp'at'n of sent.
2449	Herman A. Decker	34	New York	Bigamous cohabitation	May 24, 1904	2½ years	Sept. 19, 1906	67 days gained.
2450	Stephen Kelcher	34	Rhode Island	Assault with intent to commit rape	June 14, 1904	2 years	May 5, 1906	41 days gained.
2454	Theodore Fenner	49	Rhode Island	Attempt to have carnal knowledge of a girl under the age of consent	June 16, 1904	3 years		
2460	Charles Smith	24	Dist. Columbia	Breaking and entering dwelling in daytime and larceny	July 18, 1904	5 years		
	Same		Same	Same offence	July 18, 1904	5 years		
2461	Daniel N. Tourjie	53	Rhode Island	Carnal knowledge of a girl under 16 years of age	Oct. 3, 1004	12 years		
2463	James G. Robinson	26	Connecticut	Carnal knowledge of a girl under the age of consent	Oct. 11, 1904	18 months	March 25, 1906	18 days gained.
2464	Antonia Castrononoi	18	Rhode Island	Receiving stolen goods	Oct. 13, 1904	18 months	March 21, 1906	24 days gained.
2469	Joseph Barnes	28	Canada	Entering dwelling in daytime and larceny	Oct. 13, 1904	18 months	March 20, 1906	25 days gained,
2470	Edward H. Ives	41	Connecticut	Assault with intent to kill	Oct. 13, 1904	4½ years		
2471	Sarkis Nargashian	27	Armenia	Murder	Oct. 15, 1904	Life		
2472	John Larvin	24	Rhode Island	Larceny	Oct. 18, 1904	18 months		
	Same		Same	Same offence	Oct. 18, 1904	18 months		
	Same		Same	Breaking and entering shop at night and larceny	Oct. 18, 1904	18 months	March 30, 1906	20 days gained.
2473	Francis P. Cassidy	21	New York	Entering shop in night time and larceny	Oct. 19, 1904	18 months	March 27, 1906	24 days gained.
2474	George H. Brown	44	Dist, Columbia	Assault with a dangerous weapon	Oct. 19, 1904	15 months	Jan. 3, 1906	17 days gained.
2475	Joseph Burnes	34	Massachusetts	Larceny and receiving stolen goods	Oct. 20, 1904	18 months	March 27, 1906	25 days gained.
2476	Antonio Nardozzo	21	Italy	Manslaughter	Nov. 1, 1904	10 years		
2477	John Allingham	81	England	Manslaughter	Nov. 3, 1904	5 years		
2478	George F. Eltz	50	Connecticut	Manslaughter	Nov. 19, 1904	7 years		
2479	George B. Hoyt	39	New York	Forging and uttering	Dec. 19, 1904	2 years	Nov. 6, 1906	44 days gained.
2480	George Lincoln	51	Rhode Island	Bigamous cohabitation	Dec. 19, 1904	2½ years		
2482	Alonzo McPherson	30	Rhode Island	Assault with a dang'r's weap'n	Dec. 21, 1904	18 months	May 28, 1906	25 days gained.
2483	Harry C. Smith alias "Clyde Harry Smith"	24	Ohio	Bigamy	Dec. 21, 1904	18 months	May 28, 1906	25 days gained.

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number.	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
2486	Frederick Gorman	20	Rhode Island	Breaking, entering shop at night and larc ny	Dec. 28, 1904	18 months		
	Same		Same	Entering dwelling in daytime and larceny	Dec. 28, 1904	18 months	June 8, 1906	21 days gained
2487	James Barry	20	Rhode Island	Breaking, entering shop at night and larcny	Dec. 28, 1904	18 months	Mar. 30, 1906	25 days gained
2489	Anthony Peterson	55	Italy	Carnal knowledge of a girl under 16 years of age	Dec. 30, 1904	3 years	May 13, 1906	Died in hospital
2490	Charles Burns	38	Rhode Island	Breaking, entering shop at night and larceny	Jan. 5, 1905	2 years		
2491	Arnold Giroux	20	Vermont	Assault and battery	Jan. 5, 1905	1 year	Jan. 6, 1906	Exp'at'n of sent.
2498	Bertram Sharman alias "Bertram Sherman	20	England	Breaking, entering shop at night and larceny	Jan. 11, 1905	2 years		
	Same		Same	Breaking, entering office at night and larceny	Jan. 11, 1905	2 years		
2494	James Beaudry alias	21	Rhode Island	Breaking, entering building at night and larceny	March 13, 1905	2 years		
2495	Henry Major	24	Canada	Larceny from the person	March 20, 1905	1 year	Mar. 18, 1906	8 days gained
2496	Joseph Whalen	24	Rhode Island	Breaking, entering shop at night and larceny	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year	Mar. 10, 1906	11 days gained
2497	Eugene J. Poland	18	Rhode Island	Breaking, entering shop at night and larceny	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year		
	Same		Same	Same offenee	March 20, 1905	1 year		
	Same		Same	Same offence	March 20, 1905	1 year	Mar. 12, 1906	9 days gained
2498	Chris Anderson	31	Sweden	Larceny from the person	March 20, 1905	1 year	Mar. 10, 1906	11 days gained
2499	Conrad Baker	24	Rhode Island	Breaking, entering shop at night and larceny	March 20, 1905	1 year	Mar. 21, 1906	Exp'at'n of sent.
2500	Bertram Coleman	28	California	Breaking, entering building at night and larceny	March 20, 1905	1 year	Mar. 12, 1906	9 days gained
2501	John Gleason	34	Connecticut	Assault with danger's weapon	March 20, 1905	1 year	Mar. 10, 1906	11 days gained
2502	Henry Martin	28	New Hampshire	Larceny	March 20, 1905	1 year	Mar. 10, 1906	11 days gained

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
2503	Charles B. Luther	41	Canada	Larceny	March 20, 1905	1 year	Mar. 10, 1906	11 days gained
2504	William Jacobs	31	Rhode Island	Larceny from the person	March 20, 1905	1 year	Mar. 10, 1906	11 days gained
2505	Edward Kennedy	26	England	Breaking, entering barn at night and larceny	March 20, 1905	15 months	June 8, 1906	13 days gained
2506	Mark Schnauber	20	Iowa	Breaking, entering shop at night and larceny	March 20, 1905	15 months		
	Same		Same	Same offence	March 20, 1905	15 months	June 9, 1906	12 days gained
2507	William Kavanaugh	27	Rhode Island	Larceny	March 22, 1905	1 year	March 12, 1906	11 days gained
2508	Henry Dunn	25	Massachusetts	Larceny	March 22, 1905	1 year	March 23, 1906	Exp'at'n of sent.
2509	John Rudie	36	Austria	Larceny	March 22, 1905	1 year	March 16, 1906	7 days gained
2510	Carmine Coca	32	Italy	Assault with dang. weapon	March 22, 1905	1 year		
	Same		Same	Same offence	March 22, 1905	1 year	March 12, 1906	11 days gained
2511	Andrew Greagan	42	Poland	Carnal knowledge of a girl under age of consent	March 22, 1905	5 years		
2512	Joseph Boulet	25	Canada	Assault with dang. weapon	March 22, 1905	18 months		
	Same		Same	Same offence	March 22, 1905	18 months	Aug. 29, 1906	25 days gained
2513	James Finnigan	43	Massachusetts	Larceny	March 23, 1905	1 year	March 13, 1906	11 days gained
2514	Arthur Hargrans	32	New Hampshire	Adultery	March 27, 1905	2 years		
2515	Waldo E. Barnes Jr. U. S.	44	Rhode Island	Violation of Sect. 5480 Rev. Statutes of U. S.	June 9, 1905	1 yr. 1 da. & $10.00 fine	March 31, 1906	72 days gained
2516	Richard Dixon	50	Connecticut	Larceny	June 12, 1905	1 year	June 2, 1906	11 days gained
2517	Frank E. Nichols	30	Rhode Island	Larceny	June 19, 1905	2 years		
	Same		Same	Same offence	June 19, 1906	2 years		
2518	Joseph Erickson	21	Massachusetts	Entering barn in daytime and larceny	June 19, 1905	15 months	Sept. 20, 1906	Exp'at'n of sent.
2519	Eugene Donnelly	22	Rhode Island	Breaking, entering shop at night and larceny	June 19, 1905	15 months	Sept. 7, 1906	13 days gained
2520	George Smailes	21	England	Breaking, entering shop at at night and larceny	June 19, 1905	1 year	June 20, 1906	Exp at'n of sent.
2521	Daniel F. McCarthy	38	Rhode Island	Receiving stolen goods	June 19, 1905	1 year	June 11, 1906	9 days gained
2522	Arthur Colleton	37	New Jersey	Defacing building	June 19, 1905	1 year	June 9, 1906	11 days gained
2523	Adolph Johnson	21	Sweden	Larceny from the person	June 19, 1905	1 year	June 9, 1906	11 days gained
2524	Arthur L. Williams	38	Massachusetts	Larceny	June 19, 1905	1 year		
	Same		Same	Same offence	June 19, 1905	1 year		
	Same		Same	Same offence	June 19, 1905	1 year	June 9, 1906	11 days gained
2525	August Gonsolves	21	Cape de Verd I's	Carnal knowledge	June 26, 1905	20 months		
2526	Joseph Bernard	45	Vermont	Burglary	June 27, 1905	5 years		
2527	Frank J. Kiernan	24	Rhode Island	Passing counterfeit money	June 28, 1905	2 years		

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
2530	William Dailey	38	Massachusetts	Breaking, entering shop at night and larceny	Oct. 4, 1905	5 years		
2531	Frank Johnson	22	New York	Breaking, entering shop at night with intent to commit larceny	Oct. 4, 1905	2 years	Aug. 30, 1906	Died.
2532	Victor Levineu	25	Finland	Bkg. entering and larceny	Oct. 10, 1905	2 years		
2533	Wm. H. Sanford	33	Rhode Island	Bigamous Cohabitation	Oct. 10, 1905	18 months		
2534	Camille Ferranti alias Camille Rousna	32	Italy	Breaking, entering shop in night-time and larceny	Oct. 11, 1905	6 years		
2535	Robert Rouss alias Robert White	37	New York	False pretences in writing	Oct. 11. 1905	2 years		
2536	Henry Perfecto alias Eurico Perfetti	46	Italy	Assault with intent to kill	Oct. 11, 1905	15 years		
2537	Angelo Caparco	38	Italy	Murder	Oct. 18, 1905	Life		
2538	Edward Fitzgerald	24	Massachusetts	Breaking and entering unoccupied dwelling in night-time and larceny	Oct. 27, 1905	18 months		
	Same		Same	Same offence	Oct. 27, 1905	18 mo. add		
2539	David Lawler	25	Connecticut	Breaking and entering unoccupied dwelling in night-time and larceny	Oct. 27, 1905	18 months		
	Same		Same	Same offence	Oct. 27, 1905	18 mo. add		
2540	Joseph Rocheford	28	Massachusetts	Carnal knowledge of a girl under age of consent	Dec. 18, 1905	10years		
2541	Hector Duquette	33	Canada	Breaking, entering shop at night with intent to commit larceny	Dec. 18, 1905	4 years		
2542	Herbert N. Parkinson	24	Massachusetts	Breaking, entering shop at night with intent to commit larceny	Dec. 18, 1905	4 years		
2543	Columbus Docy	25	Arkansas	Larceny from the person	Dec. 18, 1905	2 years		
	Same		Same	Same offence	Dec. 18, 1905	2 yrs. add		
2544	Fredrrick A. Balcom	25	Massachusetts	Assault with a dangerous weapon	Dec. 28, 1905	2 years		
	Same		Same	Same offence	Dec. 28, 1905	1 yr. add		
	Same		Same	Same offence	Dec. 28, 1905	1 yr. add		
2545	James Buckley	23	So. Carolina	Burglary	Jan. 8, 1906	8 years		
2546	Kusti Bolo	27	Finland	Assault with a dangerous weapon	Jan. 4, 1906	2 years		

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number	Name.	Age.	Nativity.	Crime.	Time of Commitment	Term of Sentence.	Discharged.	Manner of Discharge.
2547	Luigi Cappielo	25	Italy	Bigamy	Jan'y 4, 1906	18 months		
2548	Martin De Santo	28	Cape Verd I's	Assault with intent to commit rape	Jan'y 16, 1906	8 years		
2549	Thomas Manning	27	Rhode Island	Larceny		2 years		
2550	David Williams	22	Rhode Island	Assault with a dangerous weapon	Jan'y 25, 1906	15 months		
2551	Michael Graham	41	Massachusetts	Entering dwelling in daytime and larceny and receiving stolen goods	March 19, 1906	15 months		
2552	William Brown	59	England	Larceny from the person	March 19, 1906	15 months		
2553	Frank Dinnany	20	Massachusetts	Larceny from the person	March 19, 1906	2 years		
2554	Anthony Bucci	25	Rhode Island	Forging and uttering	March 19, 1906	2 years		
2555	James Finair	25	Massachusetts	Larceny from the person	March 23, 1906	2 years		
2556	Manuel M. Correa	21	Azores Island	Assault with intent to kill	March 23, 1906	15 months		
2557	Salvatore Vilano	37	Italy	Attempt to have carnal knowledge of a girl under age of consent	March 27, 1906	-		
2558	Malcolm Gudoaui	31	Armenia	Assault with a dangerous weapon	March 28, 1906	2 years		
2559	Francis E. Lynch	34	Rhode Island	Rape	March 29, 1906	18 months		
2560	Adelburt Sisson U. S.	27	Rhode Island	Falsely changing and altering a certain money order	April 5, 1906	14 years		
2561	Wm. Brooking alias "Thomas Vickers"	21	Alabama	Burglary	May 26, 1906	18 months		
	Same		Same offence		June 5, 1906	5 years		
2562	Joseph Branzo alias "Philip Phillippi"	57	Italy	Entering a dwelling house in night-time and larceny	June 5, 1906	5 years		
2563	Antonio Ratillo U. S.	27	Italy	Passing counterfeit money	June 11, 1906	4 years		
2564	Arthur Gauthier alias "Arthur Conture"	28	New Brunswick	Breaking, entering dwelling house and larceny	June 16, 1906	3 yrs. and $50.00 fine		
	Same		Same	Same offence	June 18, 1906	2 years		
2565	Michael Dwyer alias "Joseph Mooney"	25	England	Larceny from the person	June 18, 1906	2 years		
2566	Samuel Boudry	22	Russia	Larceny from the person	June 18, 1906	2 years		

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STATE PRISON CONVICTS FOR THE YEAR ENDING DECEMBER 31, 1906.—*Continued.*

Number	NAME.	Age.	NATIVITY.	CRIME.	Time of Commitment	Term of Sentence.	Discharged.	MANNER OF DISCHARGE.
2567	Nathan Coffey alias "Nathan Bliss."	35	Rhode Island	Entering dwelling in night time with intent to commit larceny	June 18, 1906	5 years		
2568	Joseph Morgan	20	Rhode Island	Breaking, entering barn at night and larceny	June 21, 1906	18 months		
2569	Pascour Torsi	38	Italy	Assault with dang. weapon	June 21, 1906	18 months		
2570	Antonio Auunnziato	28	Italy	Manslaughter	June 30, 1906	7 years		
2571	William Bell	25	Georgia	Carnal knowledge	Oct. 1, 1906	8 years		
2572	Paul Levalley	21	Massachusetts	Breaking, entering dwelling in day-time and larceny	Oct. 8, 1906	18 months		
2573	Horace N. Reynolds	27	Rhode Island	Larceny from the person	Oct. 8, 1906	2 years		
2574	Edgar L. Parker	48	Massachusetts	Carnal knowledge of a girl under age of consent	Oct. 8, 1906	10 years		
2575	James McGahey	25	Rhode Island	Entering dwelling at night and larceny	Oct. 11, 1906	8 years		
2576	Joseph Draper	28	Virginia	Burglary	Oct. 11, 1906	10 years		
2577	Bernard Cassidy	39	Ireland	Entering dwelling house in day time with intent to commit larceny	Oct. 15, 1906	18 months		
2578	William D. Salisbury	50	Rhode Island	Assault with intent to kill	Oct. 16, 1906	15 years		
2579	Antono Ricciolula	53	Italy	Manslaughter	Nov. 8, 1906	12 years		
2580	Charles McNally	25	Rhode Island	Breaking, entering shop with intent to commit larceny	Nov. 9, 1906	2 years		
2581	A. Langellotta	36	Italy	Manslaughter	Nov. 19, 1906	12 years		
2582	William Henderson	26	Massachusetts	Larceny from the person	Dec. 17, 1906	15 months		
2583	George Mandell	35	Massachusetts	Forging and uttering	Dec. 17, 1906	2 years		
	Same		Same	Same offence	Dec. 17, 1906	2 years		
2584	Frank McCune alias "Edward Taylor"	19	Illinois	Assault with dang. weapon	Dec. 17, 1906	18 months		
2585	Elijl Geroux	22	Canada	Carnal knowledge	Dec. 19, 1906	18 months		
2586	Howard Young	26	Massachusetts	Breaking, entering dwelling in daytime	Dec. 19, 1906	2 years		
2587	Owen P. Sheolin	19	Ireland	Setting fire to lumber	Dec. 19, 1906	2 years		
2588	John Purcell	26	Rhode Island	Breaking, entering barn at night and larceny	Dec. 20, 1906	2 years		
2589	James Fitzpatrick	27	Rhode Island	Breaking, entering barn at night and larceny	Dec. 20, 1906	2 years		

ANDREW J. WILCOX, *Warden.*

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REPORT

of the

Superintendent of the Sockanosset School for Boys.

To the Board of State Charities and Corrections:

GENTLEMEN:—I have the honor to present herewith the statistical tables of the school for the year ending December 31, 1906.

Whole number in school December 31, 1905	345
Number since received	447
Number since discharged	454
Number in School December 31, 1906	338

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TABLE I

Showing the number received and discharged, also the number remaining in the Instititution at the close of each year, since its opening (November 1st, 1850.)

Year.	*Received.*	*Discharged.*	*Remaining.*
The 1st year	52	7	45
" 2d "	65	31	79
" 3d "	91	69	101
" 4th "	85	80	106
" 5th "	99	63	142
" 6th "	87	86	143
" 7th "	129	91	181
" 8th "	111	111	181
" 9th "	112	106	187
" 10th "	97	115	169
" 11th "	128	110	187
" 12th "	133	116	204
" 13th "	183	179	208
" 14th "	198	188	218
" 15th "	153	155	216
" 16th "	155	164	207
" 17th "	157	165	199
" 18th "	159	184	224
" 19th "	184	185	223
" 20th "	143	134	232
" 21st "	117	138	211
" 22d "	113	131	193
" 23d "	133	120	206
" 24th "	163	149	220
" 25th "	128	133	215
" 26th "	120	134	205
" 27th "	158	141	213
" 28th "	143	118	238
" 29th "	119	126	231
" 30th "	121	113	239
" 31st "	158	208	*189
" 32d "	148	199	138
" 33d "	194	159	173
" 34th "	168	177	164
" 35th "	130	128	169
" 36th "	124	101	180
" 37th "	158	133	214
" 38th "	117	131	200
" 39th "	150	120	230
" 40th "	131	176	185
" 41st "	151	161	185
" 42d "	224	174	235
" 43d "	196	171	260
" 44th "	190	198	242
" 45th "	196	173	265
" 46th "	299	280	284
" 47th "	289	212	311
" 48th "	296	248	359
" 49th "	274	304	329
" 50th "	285	279	335
" 51st "	277	248	364
" 52d "	318	322	360
" 53d "	326	349	337
" 54th "	328	331	329
" 55th "	361	345	345
" 56th "	447	454	337

*Twenty girls transferred to Oaklawn School, July 18th, 1862.

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TABLE II.

Showing the number received for each month during the past year.

Month.	*Boys.*
January	38
February	29
March	35
April	45
May	42
June	42
July	31
August	27
September	42
October	57
November	35
December	29
Total	447

TABLE III.

Showing the number discharged for each month during the past year.

Month.	*Boys.*
January	17
February	25
March	39
April	48
May	38
June	54
July	28
August	22
September	44
October	65
November	28
December	56
Total	454

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TABLE IV.

Showing the disposal and employment of those discharged the past year and previously.

DISPOSAL.	*Past Year.* Boys.	*Prev.* Boys.	*Total.*
Delivered to friends	187	3867	4054
" " Court	167	1477	1644
" " Overseer of Poor	0	10	10
Discharged on expiration of sentence	20	809	829
" to go to sea	0	35	35
" as Insane	0	5	5
Died	0	40	40
Enlisted in the army	0	52	52
" " " navy	0	18	18
Escaped not returned	13	179	192
" absent more than one day and returned or retaken	5	282	287
" retaken and sent to Jail under new sentence	0	8	8
" previously retaken and sent to Jail on alternative sentence	0	9	9
" from Rhode Island Hospital, having been injured in attempting to escape from the School	0	1	1
Indentured	17	193	210
Placed at farming	0	524	524
" " various trades	0	115	115
" " Asylum for Deaf and Dumb	0	1	1
Sent to State Workhouse and H. of C.	1	72	73
Sent to Prison	0	25	25
Discharged on payment of fine and costs	0	2	2
Released on Bail	21	287	308
Discharged by order of Court	0	27	27
" " " " Mayor	0	1	1
" " " " Attorney General	0	14	14
" " " " Board	0	3	3
" to Probation Officer	0	6	6
Placed with Children's Friend Society	0	1	1
Transferred to Jail on alternative sentence	0	6	6
Transferred to State Almshouse	0	4	4
Returned to Jail	23	138	161
Error in report of 1881	0	57	57
Totals	454	8208	8662

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TABLE V.

Showing the length of time spent in the Institution by those discharged during the past year and previously.

TIME.	*Past. year* Boys.	*Prev.* Boys.	*Total.*
Less than one month	167	1589	1756
One month and less than five	78	942	1020
Five months and less than ten	29	688	717
Ten months and less than fifteen	19	816	835
Fifteen months and less than twenty	24	1208	1232
Twenty months and less than twenty-five	75	1598	1673
Twenty-five months and less than thirty	20	476	496
Thirty months and less than thirty-five	14	289	303
Thirty-five months and less than forty	6	220	226
Forty months and less than forty-five	1	97	98
Forty-five months and less than fifty	3	71	74
Fifty months and less than fifty-five	2	41	43
Fifty-five months and less than sixty	4	38	42
Sixty months and more	12	78	90
Error in report of 1881	0	57	57
Totals	454	8208	9662

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TABLE VI.

Showing the authority by which commitments have been made the past year and previously.

AUTHORITY.	Past year.	Prev.	Total.
	Boys.	Boys.	
Court of Magistrates, Providence	0	791	791
Justice Court, Providence	0	800	800
Justice Court, North Providence	0	4	4
Court of Magistrates, Pawtucket	0	36	36
Justice Court, Pawtucket	0	61	61
Court of Magistrates, Woonsocket	0	58	58
Justice Court, Woonsocket	0	49	49
Police Court, Providence	0	170	170
Supreme Court	0	102	102
Common Pleas Division of Supreme Court	0	261	261
Court of Common Pleas	0	367	367
Court of Justices, Newport	0	51	51
Justice Court, Newport	0	104	104
Justice of Peace, in different towns	0	410	410
Order of Trustees, boarders	0	312	312
Order of Board of State Charities, boarders	0	9	9
Order of Board of State Charities, (Sec. 7 Chap. 290)	5	77	82
Order of Mayor, for safe keeping	0	2	2
From Overseer of the Poor	0	3	3
*Returned for cause	32	894	926
Returned voluntarily	1	147	148
Surrendered by surety	0	7	7
Order of Mayor	0	6	6
Order of City Marshal, for safe keeping	0	1	1
Justice Courts of other towns	0	304	304
Held for Probation Officer	0	7	7
Transferred from Jail by Board	22	143	165
First District Court	5	211	216
Second " "	1	40	41
Third " "	4	54	58
Fourth " "	11	149	160
Fifth " "	4	60	64
Sixth " "	295	1989	2284
Seventh " "	4	148	152
Eighth " "	7	135	142
Ninth " "	1	36	37
Tenth " "	13	223	236
Eleventh " "	5	159	164
Twelfth " "	15	156	171
Superior "	22	17	39
Totals	447	8553	9000

*This includes all escaped in previous years, retaken or returned.

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TABLE VII.

Showing the number committed from each county and town during the past year and previously.

	Past year.	Prev.	Total.
PROVIDENCE COUNTY.	Boys.	Boys.	
Providence	337	4367	4704
North Providence	3	110	113
Woonsocket	15	276	291
Cranston	4	136	140
Smithfield	0	41	41
North Smithfield	0	1	1
Johnston	3	121	124
Burrillville	3	56	59
Scituate	2	25	27
Gloucester	0	5	5
Cumberland	0	27	27
East Providence	4	195	199
Pawtucket	13	340	353
Lincoln	5	211	216
Totals	389	5911	6300
NEWPORT COUNTY.			
Newport	5	431	436
Fall River	0	14	14
Tiverton	0	17	17
Portsmouth	0	6	6
Little Compton	0	2	2
Totals	5	470	475
KENT COUNTY.			
Warwick	0	66	66
East Greenwich	11	181	192
Coventry	0	22	22
West Greenwich	0	3	3
Totals	11	272	283
BRISTOL COUNTY.			
Bristol	1	108	109
Warren	3	24	27
Totals	4	132	136
WASHINGTON COUNTY.			
Charlestown	0	7	7
Richmond	0	7	7
South Kingstown	0	55	55
North Kingstown	1	18	19
Exeter	0	5	5
Westerly	4	76	80
Hopkinton	0	8	8
Totals	5	176	181
From other States	0	6	6
Whole number committed	414	6967	7381
Recommitments	7	898	905
Returned from places	26	688	714

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TABLE VII.—*Continued.*

RECAPITULATION.	*Past year.*	*Prev.*	*Total.*
	Boys.	*Boys.*	
Providence County	389	5911	6300
Newport County	5	470	475
Kent County	11	272	283
Bristol County	4	182	186
Washington County	5	176	181
Other States	0	6	6
Recommitments	7	898	905
Returned from places	26	698	714
Totals	447	8558	9000

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TABLE VIII.

Showing the cause of commitment the past year and previously.

CAUSE.	Past year.	Prev.	Total.
	Boys.	Boys.	
Arson	1	5	6
Assault	6	112	118
Assault and battery	0	28	28
Assault with intent to kill	0	3	3
Assault with intent to commit rape	0	6	6
Assault with intent to rob	0	2	2
Burglary and theft	0	21	21
Burning building	0	13	13
Contempt of Court	0	1	1
Cruelty to animals	1	3	4
Carrying concealed weapons	0	2	2
Carnal knowledge	0	9	9
Defacing a building	9	35	44
Defacing property	1	4	5
Destroying property	0	3	3
Disorderly conduct on the street	10	96	106
Disturbing school	0	8	8
Driving off a horse and carriage	3	69	72
Drunkenness	0	16	16
Embezzlement	1	11	12
Exposure of person	0	1	1
Forgery	0	6	6
Fast driving	0	1	1
Held for Probation Officer	0	7	7
Housebreaking	2	78	80
Housebreaking and theft	0	57	57
Housebreaking with intent to steal	0	15	15
Incorrigibility	0	4	4
Lewdness	0	1	1
Malicious mischief	0	99	99
Obtaining goods under false pretenses	0	5	5
Obtaining money under false pretenses	0	5	5
Passing counterfeit money	0	1	1
Receiving stolen money or goods	3	16	19
Returned for cause	32	887	919
Returned voluntarily	1	147	148
Revelling	0	6	6
Shop-breaking	11	189	200
Stubbornness and truancy	5	394	399
Taking and using boat	0	3	3
Theft from the person	0	13	13
Theft	64	2510	2574
Threatening to assault	0	1	1
Threatening to kill	0	1	1
Throwing stones at a train	0	3	3
Transferred from Jail by Board	22	143	165
To await trial	179	1621	1800
Truancy (Chapter 868 Public Laws)	0	25	25
Truancy (Chapter 649 Public Laws)	63	706	769
Using profane language	0	2	2
Vagrancy	33	1160	1193
Surrendered by surety	0	2	2
Sturdy beggar	0	1	1
False pretenses in writing	0	1	1
Totals	447	8553	9000

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TABLE IX.

Showing the terms of sentences of those committed the past year:

TERMS.	BOYS.
Minority	191
Two years	50
Three years	2
To await trial	179
Transferred from Jail	23
Four years	2
Total	447

TABLE X.

Showing the ages of those committed the past year:

AGES.	BOYS.
Seven years	1
Eight years	17
Nine years	19
Ten years	43
Eleven years	63
Twelve years	87
Thirteen years	61
Fourteen years	45
Fifteen years	42
Sixteen years	42
Seventeen years	22
Eighteen years	3
Nineteen years	0
Twenty years	2
Total	447

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STATEMENT OF EXPENDITURES AND INCOME FOR THE YEAR ENDING DECEMRER 31, 1906.

Expenditures	$59,739 12
Income	668 25
Balance	$59,070 87

Respectfully submitted,

JAMES H. EASTMAN, *Superintendent.*

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Report of the Religious Instructor.

To the Board of State Charities and Corrections:

Gentlemen:—The first two months of the year just closed were covered by my engagement as "supply-chaplain" during the leave of absence granted my predecessor, the Reverend James H. Nutting, on account of severe sickness. Near the end of January Mr. Nutting was able to visit the Institutions, and on Sunday, February 4th, attended the various services and assisted in several, as his returning health seemed to warrant. He was confident that he would soon be able to resume his labors. This expectation was not to be realized. On February 20th, the great heart, which for eighteen years had throbbed with sympathy and love for the poor, the sick and the sinful in this field of Christian service, having literally worn itself out in the endeavor to meet the demands of a work so wide and exacting, ceased to beat, and the good man passed on to his rest and reward. No radical change has been made in the programme of the chaplain's duties. They are those of a busy pastor, multiplied, and often complicated, by the peculiarities of institutional life and requirements. The different classes cared for by the State in the several institutions appeal constantly to him as he is "the servant of all," and it is only by promptness and diligence that the work can be done satisfactorily to himself or acceptably to those whom he serves. I think the present arrangement of the Sunday services the best that could be devised. They are fairly distributed throughout the day and are so timed at the several institutions as not to interfere with the daily routine for which those in charge of the different departments are responsible. The work through the week-days cannot be conformed to a schedule. While I have planned to perform my duties regularly and systematically, funeral services and special ministrations, ubject to call, make rearrangement necessary. My general

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health has been good during the year enabling me to meet all regular appointments, all special requirements and to look after such outside matters as have been committed to my care by the Board, or at the request of the Superintendent of the Sockanosset School for Boys and the Oaklawn School for Girls. I am happy to state that the relations subsisting between my co-workers in the religious work of the institutions and myself have been most agreeable. I believe that we have striven to do our work, each in his own field, with mutual respect and good-will, and, we trust, profitably to the inmates and acceptably to the Board.

I desire also to record my appreciation of the uniform courtesy of the officers of the several institutions, and their readiness at all times to facilitate in every proper way the work committed to me. And, on my part, it has been my steadfast purpose not to embarrass the administration or to interfere with discipline.

It was the pleasure of the Board that I should attend the National Conference of Charities and Corrections in Philadelphia, in May, and also the National Prison Congress in Albany in October. These appointments, for which I express sincere thanks, gave me opportunity to learn much that will be of practical value to me in my work.

Respectfully submitted,

Charles H. Ewer, Chaplain.

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Report of the Physician of the State Institutions.

To James H. Eastman, SUPT:

SIR:—I hereby submit my report as Resident Physician of the State Workhouse and House of Correction, the State Almshouse, the Sockanosset School for Boys and the Oaklawn School for Girls, for the year 1906:

WORKHOUSE AND HOUSE OF CORRECTION.

In the male department of the State Workhouse and House of Correction there were in 1906 a greater number of sick, also a larger death rate, than in 1905. The causes of death were as follows:—

Alcoholism	3
Diseases of heart	3
" " lungs	1
" " brain	1
" " intestines	3
Total	11

During the summer and autumn, diarrhoea and dysentery were prevalent, assuming the proportions of an epidemic severe in character. Owing to the enfeebled condition of many of the inmates affected, recovery was slow in many instances.

Not having any hospital facilities in this institution, the first ward was used as a hospital, all inmates being detained there as soon as they developed disease. Typhoid fever developed in this department also, and as these cases conld not be cared for in the open ward, they were transferred to the State Almshouse for special treatment; one of these cases died.

In the female department healthful conditions prevailed, no cases of this disease having developed.

We have been greatly impressed by the large number of mental defectives of both sexes that have been admitted to

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this institution, and they vary as much in mental character as in physique, ranging from the feeble, demented "wrecks" to the robust and dangerous epileptics, whose care and sequestration causes serious anxiety to all concerned. Their presence in an institution of this kind constitutes a grave danger, not only to themselves but to others around them.

We would again call attention to the need of hospital facilities for this institution, the population of which is composed more and more, each year, of those who require medical care, and whose transference to the State Almshouse wards adds a grievous burden to that greatly overcrowded institution.

STATE ALMSHOUSE.

The overcrowded condition of this institution still remains, as mentioned in previous reports. Many of the sick occupy beds in the sleeping wards, and the congested conditions are aggravated by the number of cases seriously ill which are transferred from the Workhouse and House of Correction for special treatment, and whose presence among the deserving poor is objectionable from more than a physical standpoint.

No classification can be made here on account of the overcrowded condition, the epileptics, the feeble minded, the young and the aged being in close contact, greatly to the detriment of each class.

Owing to the large number of aged inmates and tuberculous cases admitted, the death rate is larger than last year, the total of which is 192, tuberculosis alone accounting for 54 deaths.

Two cases of typhoid-fever developed here, one boy and one female night-watch being affected; both cases recovered. Several cases of cancer in the last stages were admitted, and all died. As mentioned in our report of 1905, some provision should be made to keep separate from others this most unfortunate class of patients.

No epidemics appeared in this institution, and in the nur-

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sery department the general health of the children was excellent.

OAKLAWN SCHOOL FOR GIRLS.

At the Oaklawn School for girls the usual healthful conditions prevail.

SOCKANOSSET SCHOOL FOR BOYS.

During the autumn, typhoid fever developed, and fourteen boys came down with this disease. Many of them were seriously ill, their condition calling for constant trained nursing day and night.

Every method known to medical science was employed for their recovery; nothing was stinted in the way of nursing or medical supplies.

The result of this care and attention was gratifying, no deaths having occurred. Some of the cases recovered slowly and with a considerable outlay to the State, but all interested in their welfare are amply repaid by the sight of rosy, smiling faces and healthful bodies which once were so emaciated by disease. One case of measles developed, and many cases of tonsilitis; otherwise the general health of the institution was excellent, no deaths occurring during the year.

Respectfully submitted,

HENRY A. JONES, M. D.

PHYSICIAN STATE INSTITUTIONS.

To Andrew J. Wilcox, WARDEN.

STATE PRISON AND PROVIDENCE COUNTY JAIL.

SIR:—I hereby submit my report as Resident Physician of the State Prison and Providence County Jail for the year 1906.

A more healthful condition prevailed the past year in the State Prison and Providence County Jail than during the previous year.

One case of typhoid occurred, that of an officer who was taken ill shortly after coming to work here. We are inclined to believe that the disease had been contracted previously.

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Two cases of measles occurred, one officer and one inmate of the Jail having been affected. Prompt isolation of both cases was instituted and no cases ensued.

Three deaths occurred during the year, two in the State Prison and one in the Jail.

We are pleased to note that no cases of insanity developed during the year; those mentally deranged were found so on entering and were transferred to the State Hospital for the Insane so soon as arrangements could be made.

A tone of general cheerfulness prevailed among the inmates here, a fact which has been often commented on by visitors from other states. This condition makes for the betterment of the prisoners, especially the long term men, for a contented and cheerful state of mind tends to improve the physical condition and make it less susceptible to disease.

The food furnished to the prisoners is plenteous and of good quality, as their physical condition testifies.

In the Jail the sanitary conditions are as good as the present overcrowded conditions will permit. The erection of a new Jail has been dwelt upon for years, as previous reports of the Board show, and it is as imperatively needed now as ever. The massing together of these men is dangerous from a sanitary aspect,—the physical condition of some endangering the health of those who must of necessity be their cell-mates.

Little hope can be held out for the physical upbuilding of a prisoner if he is forced to consort and have close association with those infected by disease. Such contact and association are very apt to undermine the health and undo whatever good medical treatment may accomplish.

Respectfully submitted,

HENRY A JONES, M. D.,

PHYSICIAN STATE INSTITUTIONS.

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REPORT

OF THE

Agent of State Charities and Corrections.

OFFICE OF THE AGENT OF STATE CHARITIES AND CORRECTIONS,
PROVIDENCE R. I., JANUARY 1, 1907.

To the Board of State Charities and Corrections.

GENTLEMEN: The undersigned respectfully presents the report of his department for the year 1906:

STATE HOSPITAL FOR THE INSANE.

	Men.	*Women.*	*Total.*
Number of persons January 1, 1906	516	478	994
Admitted during the year	217	159	376
Returned from parole	98	53	151
Escaped patients returned	14	0	14
Total	845	690	1,535
Discharged during the year	39	19	58
Died during the year	89	74	163
Released on parole during the year	171	118	289
Escaped during the year	19	0	19
Total	318	211	529
Number remaining December 31, 1906	527	479	1,006

One patient, who was not committed, died, making total of deaths 164.

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Of the 376 patients admitted to the State Hospital for the Insane during the year, three hundred and twenty-nine were committed by the District Courts.

The sum of $18,848 09 was collected during the year for the board, care and medical attendance of patients supported at the State Hospital for the Insane by their relatives or friends.

The State Hospital for the Insane was opened for occupancy November 7th, 1870, and from that date to the first day of January, 1871, there were received 118 insane persons, of whom sixty-five were received from Butler Hospital, twenty-two from the Vermont Asylum at Brattleboro, four from the Asylum at Worcester, Massachusetts, two from the Asylum at Taunton, Massachusetts, and twenty-five from the Town Poor-houses in this State.

The following table shows the number remaining January 1, 1907, of the patients admitted each year since November 7, 1870:

Year.	*Admissions.*	*Remaining Jan. 1, 1907.*
1870	118	4
1871	68	5
1872	53	2
1873	53	3
1874	50	1
1875	59	5
1876	76	4
1887	58	4
1878	44	3
1879	84	2
1880	70	3
1881	96	8
1882	72	4
1883	69	6
1884	90	5
1885	137	20
1886	147	12
1887	143	13
1888	164	15
1889	140	4

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1890	163	12
1891	167	17
1892	188	19
1893	214	36
1894	198	28
1895	199	34
1896	205	29
1897	243	26
1898	190	26
1899	216	29
1900	277	43
1901	297	58
1902	328	60
1903	342	66
1904	324	81
1905	346	109
1906	376	210
	5394	1006

PAROLING THE INSANE.

The paroling of patients from this hospital and from Butler Hospital is permitted under the provisions of Chapter 576 of the Public Laws passed June 14th, 1898, which are as follows:—

"Section 1. The superintendent of the State Hospital for the Insane, acting under the direction of the board of state charities and corrections, may, whenever he shall deem it for the welfare of any inmate and consistent with the public safety, permit any of the inmates of the said hospital, committed thereto under the provisions of sections 1 and 48 of Chapter 82 of the General Laws, to leave the said hospital temporarily, in charge of his guardian, relatives or friends, for a period not exceeding sixty days, and receive him whenever returned by said guardian, relatives or friends, within such period, without further order of commitment."

"Section 2. The provisions of the foregoing section shall apply to the trustees and superintendent of the Butler Hospital."

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"Section 3. The duties and authority of the agent of state charities and corrections, as set forth in sections 39 and 45 of Chapter 82 of the General Laws, shall extend and apply to all persons paroled under the provisions of this act during the period of such parole."

It has been found that the limit of sixty days is too short and it is recommended that the period of absence be lengthened to six months; that is the law of Massachusetts, an amendment, adopted in 1905, increasing the permitted period from sixty days to six months. A copy of this amendment is hereinafter given in this report.

The following is quoted from the report of the State Board of Insanity of Massachusetts for 1904.

"It has been found that the limit of sixty days is too short. The practice has grown up at some institutions of extending the period by having such patients return at the end of sixty days, and, immediately, or after a night's stay, leave again, the visit being thus renewed repeatedly. Sometimes the same end is attained by placing the patient under family care, which requires visitation and unnecessary supervision by the State Board. The patient may be taken ill near the expiration of the period, and be unable to return within the limit. The superintendent may wish to continue his observation of the patient for a longer time before he feels justified in granting a full discharge. There is no doubt that friends of patients more readily remove them when they are assured that a return in case of failure would not require the expense and trouble of a new commitment. This provision promotes the discharge of patients, and has always been beneficent in its results."

"The Board (Massachusetts) would recommend that the period of such temporary absence be lengthened to six months."

BOARDING OUT THE INSANE.

In this connection your agent would renew his recommendation for a law permitting the Board of State Charities and

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Corrections to board out the insane of the quiet chronic class in private families. This method of boarding the insane has been lawful in Massachusetts since 1885 and there are now in that State nearly three hundred of the quiet chronic insane boarded in private families. I quote from a private letter of Dr. Copp, the Executive Officer of the State Board of Insanity of Massachusetts, on this subject, also on the change in the law of parole.

"Replying to your inquiry relative to our new parole law for the insane, I shall be glad to serve you in any way possible."

"In our report for the year 1904, page 24, the Board discussed the general reasons for its action in recommending the extension of the time from sixty days to six months. Our anticipations have been more than met by the operation of the law. I think it is likely to reduce the number of court commitments to some extent. The decrease this year over the two previous years is quite marked, the commitments for the last five years being as follows: 1906, 2520; 1905, 2775; 1904, 2709; 1903, 2610; 1902, 2476. The marked reduction is accidental to a large degree, I think."

"As regards family care of the insane, I send you, under separate cover, two reprints of papers on the subject. You will note from our reports that we have now nearly 300 in families (285 on October, 1, 1906.) Formerly the State Board did this work alone, but two years ago the trustees of institutions were authorized to do it, but independently from the Board except for supervision. They have placed out fifteen patients, of whom eleven are now remaining."

"I have come to believe that family care is an important part of any adequate system for the care of the insane. It helps to remove from institutions a class of harmless, quiet patients, who tend to accumulate therein because they have no friends and are unable to be entirely self maintaining; but they are able to do something for themselves and often make

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places in which they become entirely self-supporting, or at least are partially so."

"During the last year 25 patients have passed from public support as a result of this work. Since the work was inaugurated in 1885,884 different patients have been placed in families, of whom about 20 per cent. have passed from public support, and of those who have passed from public support only about 28 per cent. have reappeared."

"It is a work which requires very careful supervision. We have a physician who has had experience in the care of the insane in immediate charge of the work; he is assisted by two visitors, both graduates of a general hospital training school for nurses. Without such an organization for supervision I would not advise its inauguration. Patients are constantly changing in condition and need to be followed very carefully. The whole success of the system depends upon the carefulness of oversight. Patients are, as a rule, happier and prefer it to an institution; they often improve; the cost, after making all allowances, is not greater than in an institution, and if account is taken of resulting relief on public support, there is a distinct saving in their care."

"You will find a discussion of the relative cost in my paper and also in our annual reports, which I believe you have."

The amended law of parole in Massachusetts is as follows:—

(Acts of 1905, Chapter 435.)

An Act relative to temporary absences of patients from institutions for the insane.

Be it enacted, etc, as follows:—

Section 1. Chapter eighty-seven of the Revised Laws is hereby amended by striking out section ninety-five and inserting in place thereof the following:—Section 95. The superintendent or keeper of any institution, public or private, used wholly or in part for the care of the insane, may permit any inmate thereof temporarily to leave such institution in charge of

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his guardian, relatives, friends or by himself, for a period not exceeding six months, and may receive him when returned by any such guardian, relatives, friends or upon his own application, within such period, without any further order of commitment. The expense of such return of a pauper may be paid by the state board of insanity, if, in its opinion, a new commitment would otherwise be necessary. This act shall take effect upon its passage. (Approved May 28, 1905.)

The amended law for family care in Massachusetts is as follows:—

(Acts of 1905, Chapter 458.)

An Act relative to family care for suitable inmates of institutions for the insane.

Be it enacted, etc, as follows:—

Section 1. Chapter eighty-seven of the Revised Laws is hereby amended by striking out section one hundred and two and inserting in place thereof the following:— Section 102. Any patient in an institution, public or private, used wholly or in part for the care of the insane, who is quiet and not dangerous nor committed as a dipsomaniac or inebriate, and who is under the supervision of the state board of insanity, may be placed by said board, if it considers it expedient, at board in a suitable family or place in the Commonwealth or elsewhere. Any such patient in a public institution used wholly or in part for the care of the insane may so be boarded by the trustees thereof, and such boarder shall be deemed to be an inmate of said institution. The cost to the Commonwealth of the board of such paupers shall not exceed three dollars and twenty-five cents a week for each person.

Section 2. Said chapter eighty-seven is hereby further amended by striking out section one hundred and three and inserting in place thereof the following:— Section 103. Bills for the support of persons who are boarded in families by the state board of insanity at public expense shall be payable

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quarterly, and shall be audited by said board, and the board shall, at the end of March, June, September, and December, present to the auditor a schedule of all such bills as have been incurred, and said board shall keep a register in such form that the auditor shall be able to verify such schedules.

Section 3. Said chapter eighty-seven is hereby further amended by striking out section one hundred and four and inserting in place thereof the following:— Section 104. The state board of insanity shall cause all persons who are boarded by it in families at public expense to be visited at least once in three months, and all persons who are boarded in families at public expense by the trustees of any institution authorized to board out its inmates, to be visited once in six months by an agent of said board. The trustees of every institution authorized to board out its inmates shall cause all persons who are so boarded by them in families at public expense to be visited at least once in three months, and shall inform the state board of insanity of the location of every such boarder, and shall furnish such other information as the board shall require.

Section 4. Said chapter eighty-seven is hereby further amended by striking out section one hundred and five and inserting in place thereof the following:— Section 105. Said state board shall cause to be removed to an institution used wholly or in part for the care of the insane or to a better boarding place all persons who, upon visitation, are found to be abused, neglected or improperly cared for when boarded out in families. Said board may permit any boarder temporarily to leave custody as an insane person in charge of his guardian, relatives, friends or by himself, for a period not exceeding one year, and may receive him again into such custody when returned by any such guardian, relatives, friends or upon his own application, without any further order of commitment, and may, during such temporary absence, assist in his maintenance

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to an amount not exceeding three dollars and twenty-five cents a week.

Section 5. This act shall take affect upon its passage. (Approved May 25, 1905.)

STATE ALMSHOUSE.

	Men.	*Women.*	*Boys.*	*Girls.*	*Total.*
Number of inmates Jan. 1, 1906	219	216	37	29	501
Received during the year	216	139	11	14	380
Born during the year			7	5	12
Total	435	355	55	48	893
	Men.	*Women.*	*Boys.*	*Girls.*	*Total.*
Discharged during the year	108	54	13	18	193
Died during the year	112	70	8	2	192
Total	220	124	21	20	385
Remaining Jan. 1, 1907	215	231	34	28	508

The number received from the cities and towns of the State and from other sources were as follows:—

From	Providence	194	From	Burrillville	3
"	Pawtucket	44	"	Warwick	17
"	Cumberland	4	"	Smithfield	1
"	Coventry	7	"	Scituate	3
"	Foster	1	"	North Kingstown	1
"	Lincoln	6	"	West Greenwich	2
"	Central Falls	28	"	Johnston	1
"	East Providence	13	"	Glocester	2
"	Cranston	5	"	Rhode Island Hospital	6
"	Bristol	1	"	State Workhouse	2
"	Charlestown	1	"	Prov. County Jail	3
"	Warren	3	"	R. I. S. P. C. to C.	5
"	North Providence	1	"	Oaklawn School	2
"	Exeter	2	"	R. I. State Prison	1
"	East Greenwich	1	"	Sophia Little Home	4
"	Newport	11			
"	Woonsocket	17		Total	392

The above table includes the children born at the Almshouse who are counted as coming from the same places as their mothers.

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The sum of $6,192.53 was collected for the board of several of the inmates.

The following table shows the number of inmates, adults and children, of each sex, in the State Almshouse, on the first day of January of each year, since the institution was opened for occupancy in August, 1874.

STATE ALMSHOUSE

	Men.	*Women.*	*Boys.*	*Girls.*	*Total.*
Number of inmates January 1, 1875	53	49	18	21	141
" " " 1876	61	62	20	21	164
" " " 1877	68	60	6	8	142
" " " 1878	61	66	9	4	140
" " " 1879	76	71	25	12	184
" " " 1880	71	69	14	8	162
" " " 1881	76	77	21	4	178
" " " 1882	88	66	12	5	171
" " " 1883	91	79	29	22	221
" " " 1884	86	69	30	15	200
" " " 1885	81	72	32	21	206
" " " 1886	103	65	13	12	193
" " " 1887	95	71	15	9	190
" " " 1888	100	72	14	19	205
" " " 1889	115	80	12	23	230
" " " 1890	116	102	17	20	255
" " " 1891	103	100	11	22	236
" " " 1892	103	110	9	13	235
" " " 1893	110	127	14	20	271
" " " 1894	113	133	12	19	277
" " " 1895	114	126	19	18	277
" " " 1896	137	146	28	18	329
" " " 1897	122	136	28	23	309
" " " 1898	152	155	29	31	367
" " " 1899	147	160	31	23	361
" " " 1900	167	169	29	11	376
" " " 1901	174	176	33	13	396
" " " 1902	190	175	36	19	420
" " " 1903	190	191	31	23	435
" " " 1904	195	192	38	28	453
" " " 1905	225	201	34	24	484

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		Men.	Women.	Boys.	Girls.	Total.
Number of inmates	January 1, 1906.....	219	216	37	29	501
" "	" 1907.....	215	231	34	28	508

REMOVAL OF PAUPERS.

There were removed, during the year, 636 persons. Of this number, 512 were sent away from the State, fifty-six of whom were sent to foreign countries, and ninety-three were sent to places within the State.

One hundred and three of the whole number had been inmates of the Workhouse and House of Correction; thirteen, of the States Almshouse; sixty-two, of the State Hospital for the Insane; four, of the Providence County Jail; two, of the State Prison; and one, of the Oaklawn School for Girls.

Included in the above total, 636, there were seventy-two insane persons, of whom sixty-two were from the State Hospital for the Insane and ten from places where they had been cared for temporarily.

LICENSED BOARDING PLACES FOR INFANTS.

Under the provisions of the law licensing and regulating the receiving, boarding and keeping of infants, twenty-seven licenses were issued the past year, forty-seven infant inmates were recorded, and one hundred and three visits to licensed places were made by representatives of this department.

The number of licenses in effect December 31, 1906, was twenty-five, distributed as follows:— Eleven in Providence, five in Newport, two in Warwick, one in Charlestown, four in East Providence, one in Pawtucket and one in Burrillville.

The following table shows the sums collected each month during the year ending December 31, 1906, on account of the several departments of the Agent's work:-

	State Hospital.	State Almshouse.	Butler Hospital.	Probation Work.	Transportation.	Interest.
January.....	$2,137 88	$1,347 79	$26 15	$28 70		$1 28
February....	1,407 21	242 19	13 29	37 75		2 66
March.....	1,008 74	25 00	12 00	28 80		

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	State Hospital.	*State Almshouse.*	*Butler Hospital.*	*Probation Work.*	*Transportation.*	*Interest.*
April	1,773 61	1,186 40	13 29	88 40	$2 33	$3 79
May	1,719 59	331 13	12 86	4 00	60 00	2 85
June	1,550 89	90 15	13 29	63 70	6 10	2 70
July	2,257 68	1,203 63	12 86	53 00	5 10	1 93
August	1,353 74	99 58	13 29	38 00		3 33
September.	1,413 12	91 58	62 28	16 90		3 42
October	1,881 05	957 07	12 86	35 96		1 87
November.	985 73	392 43	13 29	7 00		2 76
December.	1,358 85	225 58	12 86	66 65		1 88
	$18,848 09	$6,192 53	$218 32	$468 86	$73 53	$28 47

PROBATION WORK.

Under the beneficent provisions of Chapter 1367 of the Public Laws, passed at the January Session of the General Assembly, 1905, your officers have placed in private charitable institutions under Christian influence, forty female probationers. In the opinion of your officers, this law is not only wise and beneficent but economic as well, working for the uplifting of the fallen, and a distinct saving to the State. There is ample room for its extension to permit the boarding out of inmates of the State Almshouse, many of whom, for a small sum per annum, could be cared for by relatives or friends who are too poor to assume the whole burden.

During the past year, 812 persons were placed in the custody of the several probation officers, divided as follows:—Men, 331; women, 73; juveniles, 408. Of the 331 men, 302 were placed on probation by the District Courts for minor offences, principally for non-support of their families.

Of the 408 juveniles, and of the 73 women, 59 were placed on probation by the District Courts.

Seventy persons, only, of the total 812 were committed to the custody of the probation officers by the Superior Court of the counties of Providence, Newport, Washington, Bristol and

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Kent, five of whom were subsequently surrendered to the Court for sentence.

The reports herewith submitted show the details of each probation officer's work during the year.

REPORT OF WILLIAM J. WALLACE, PROBATION OFFICER FOR MEN AND BOYS OF THE CITY OF PROVIDENCE.

In December, 1906, the criminal division of the Sixth District Court was moved from the Central Police Station to the historic old State House on North Main Street. The change has considerably increased, rather than lessened, the work of the probation officers for the City of Providence. At the old quarters, your officers could interview all prisoners, not only those about to be arraigned in Court, but also those arrested in all the precincts of the city and sent to the Central Station for further investigation and proper disposal of their cases. As only those prisoners who are to be taken before the Court are now sent to the Court House, the probation officers are obliged to visit the Central Police Station daily in the interest of that large class of evil doers known as suspicious characters, after the regular work of arraignments, trials, and recording of cases is completed.

Two hundred and thirty-five boys under sixteen years of age and two hundred men were committed to the custody of the probation officer by the Sixth District Court the past year. Fifty boys, who were ordered by the police to appear in Court, were also turned over to the probation officer without arraignment. The usual number of run-away boys, about one hundred, picked up by the police throughout the city and detained until their parents or friends were notified, were disposed of by the probation officer, as were likewise the cases of more than two hundred suspects, non-residents, who were removed to their homes.

Several hundred dollars were collected from persons on probation towards costs of Courts, and over five thousand

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dollars, collected likewise, were paid to the families of probationers guilty of non-support; and as much more was collected and disbursed through the Police Department. As will be seen by glancing over past reports, the number of non-support cases has increased from year to year, and were it not for the great interest taken in the cases by the police captains, one probation officer, no matter how efficient he might be, could not possibly do the work satisfactorily. We read and hear a great deal now-a-days about the great good accomplished by juvenile courts in other states, but seldom, if ever, do we hear of the results attained in our own state; yet RhodeIsland was one of the first of the states to have a law in the interest of juvenile offenders placed upon its statutes. Beginning with the juvenile offender act of 1898, and continuing under the present law enacted in 1899, whereby both adults and juveniles may be placed on probation for any save those offences enumerated in Section 18, Chapter 285 of the General Laws of Rhode Island, the probation officers, not only for the City of Providence but also for the other cities and towns of the state, have labored unceasingly in their respective fields of probationery endeavor. The excellent results attained have proven the necessity and demonstrated the usefulness of probation work when correctly understood and judiciously carried on. The courts, police, and all who are concerned in the administration of criminal law, consider the probation system an almost indispensable adjunct. Our judges, notwithstanding lack of facilities, additional legislation, and other essentials needed to cope successfully with new conditions as they arrive, have done all in their power to make the special sessions of the court for children, as nearly as possible, for all intents and purposes, a juvenile-court. But to be effective, the work should be supplemented by various child-saving agencies, and while we are well supplied with homes and schools for dependent children, there is no place in Rhode Island, except the State Reform

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School, where juvenile delinquents may be cared for or even temporarily detained. In cities where juvenile courts are established, with jurisdiction for dependent as well as delinquent children, the detention-home is considered indispensable to the court. Such eminent authorities as Judge Mack, of Chicago, and Judge Lindsey, of Denver, insist that no children's court is fully equipped without a proper house-of-detention; the latter, in speaking of the value he attaches to the detention-house, calls it the "Right arm of discipline of the Court." Detention-houses in connection with juvenile courts have already been opened in New York, Philadelphia, and Chicago. The detention-house acts as a temporary abode for the care, education, and maintenance of children pending the disposition of their cases. The sad, neglected condition of so many poor, unfortunate children when they appear in court forcibly reminds us that something must be done to ameliorate present conditions. Some one is at fault; if parents or guardians can not be held responsible, then the State, or other authorized agencies, must assume the responsibility. Our State now has a wise child-labor law and a good compulsory school law; what is needed to make the work of the factory inspectors, truant officers and probation officers more far-reaching and effective is a law holding parents and others responsible for the delinquency of children, and a detention-house for delinquents who do not require rigid discipline and constant restraint. In our opinion, a proper detention-home would be a great factor in reclaiming hundreds of boys who would otherwise lead lives of vice and crime. Each boy that is now claimed, educated, and started on the road to good citizenship will eliminate a criminal, a tramp, or a pauper of the future, and not only relieve society of those evils, but help it by adding one more to its useful members. We feel confident that as our work is better known and understood, it will meet with more hearty public sentiment and support.

Respectfully submitted,

WILLIAM J. WALLACE,

PROBATION OFFICER.

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REPORT OF THEOPHILUS TOPHAM, PROBATION OFFICER FOR THE CITY OF NEWPORT.

During the year 1906, in Newport County, seventy-six persons were placed on probation, as follows:—Juveniles, thirty-one; men, forty-one; women, four.

The disposition of cases was as follows;—Cases discontinued, nine; cases pending, sixty-two; surrendered for sentence, five.

Three men were sent out of the State.

One hundred and fifty-six dollars were collected in small installments for the payment of costs of court.

During the year about five hundred dollars were collected from those on probation for non-support, and used for the benefit of their families.

Of the old cases, sixty-eight are still pending, sixteen have been discontinued, and eleven have been surrendered for sentence.

On January 1, 1907, there were sixty men, nine women, and sixty-one juveniles on probation; total, one hundred and thirty.

I recommend that some arrangement be made, if possible, by the Board of State Charities with the authorities at Washington, whereby it shall be the duty of the executive officer at the United States Naval Training Station to cooperate with your probation officer regarding men of the United States Navy who are placed on probation for non-support. Without such an arrangement, it is useless to take this class of men on probation.

It is earnestly suggested that the recommendations upon this subject made in former reports be given serious consideration and adopted. Such action would, I am sure, increase the value of the probation law and be a great help to the probation officers in their work.

Respectfully submitted

THEOPHILUS TOPHAM,

PROBATION OFFICER.

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REPORT OF THOMAS B. MAYMON, PROBATION OFFICER FOR THE CITIES OF PAWTUCKET AND CENTRAL FALLS AND THE TOWNS OF CUMBERLAND AND LINCOLN.

During the year 1906, four hundred and ten persons were in charge of the probation officer of the above named cities and towns, under the jurisdiction of the Tenth and Eleventh Judicial Districts, as follows;— Two hundred and thirty-seven men were old cases, carried along from previous years, and one hundred and seventy-three are new cases, divided as follows:— One hundred and fifty-one men, fifty-five women, fifty-one girls and one hundred and fifty-three boys. The cases were disposed of as follows:— Of the one hundred and fifty-one men, the cases of thirty were discontinued; thirteen were surrendered to the Court and sentenced and the cases of one hundred and eight are now pending. Of the fifty-five women, the cases of twenty-three were discontinued, two were surrendered to the Court and sentenced, and the cases of thirty are now pending. Of the fifty-one girls, the cases of ten were discontinued, and forty-one are now pending. Of the one hundred and fifty-three boys, the cases of thirty were discontinued, eight were surrendered to the Court and sentenced, and one hundred and fifteen are now pending.

Twenty-nine girls and twelve boys, under the age of seventeen years, were placed in good families or in private institutions. This course of action has, in many instances, proved beneficial to juveniles, for quite often the downward steps are taken through conditions of home, or, perhaps, having no parents or guardians, or any person with authority to assume the responsibility of caring for them, they have been led to their misfortune by a class of people who seem to be friendly and take advantage of a lone and sometimes weak-minded youth. These are the young people who can be benefited by probation, and in some instances they have come to be respected and beloved by honorable and law-abiding citizens. The essential need in most cases is a proper environment and good companions.

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We are very kindly and heartily assisted in our work by the several charitable organizations in the State, and while considerable time is given to the uplifting of the young people, and the preservation and building up of their future lives, we are also called upon to find and operate a remedy for the men and women. Much depends upon the parents of children, and yet very many men apparently forget or ignore their responsibility to support their families,—perhaps because the punishment for this class of offenders is not sufficient, in some cases, to meet the requirements. However, many of these cases are placed in charge of the probation officer and visits are made to the homes; situations are carefully investigated, propositions are made and tried and, finally, in some cases, a reason for the trouble is discovered and a remedy applied; very often the result is most satisfactory.

Some probationers call on the probation officer weekly, some fortnightly and some monthly.

Over two thousand dollars were collected, during the year, from the above class of offenders and were expended for the support of their dependent families.

During the year, two hundred and ninety dollars were collected, in small installments, toward the liquidation of costs of court.

Respectfully submitted,

THOMAS B. MAYMON,

PROBATION OFFICER.

REPORT OF GEORGE L. SMITH, PROBATION OFFICER FOR THE FIFTH AND SEVENTH JUDICIAL DISTRICTS.

As an introduction to my report as probation-officer, I will state my connection and interest in the work since probation became authorized by law in Rhode Island. I was a member of the committee that helped to draft the bill that was presented to the General Assembly, and as a member of that body assisted its passage. I was chairman of the Probation

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Committee, appointed by the Board of State Charities and Corrections, up to the time of my resignation from the Board last March. I was appointed probation officer April twentieth, 1906. My field of work is in the Fifth District Court, Bristol County, and the Seventh District Court, East Providence, together with the examination of the Grand Jury cases in the counties of Bristol, Kent, Washington, and Providence. I have examined many cases in the Fifth Judicial District and taken a number of cases on probation. The Seventh Judicial District, covering as it does, Phillipsdale, Watchemoket, Riverside and Crescent Park, claims much of my time and attention.

I fully believe that probation is of great benefit to the State. The small sum spent in the work will, I believe, prevent thousands of dollars being expended in enlarging our State Institutions.

The duty of a probation officer is not confined to courts only; much time is required looking after the unfortunates in their homes, and encouraging them to do right. A probation-officer with tact and ability and having the confidence of the community in which he is working, can settle many difficulties, unite families and thereby prevent many cases ever coming before the courts. Judge Lindsey, father of the Juvenile Court of Denver, Colorado, says that "one probation officer, earnestly and enthusiastically engaged in his work, will do more in the course of a year to prevent crime than the best District Attorney can do in five years in prosecuting crime".

A probation officer though meeting with many discouragements is often rewarded and his heart made glad by the "God bless you" uttered by some fond mother who has her wayward son returned to her for another chance to become a useful member of organized society. I thoroughly believe in the work.

Respectfully submitted,
GEORGE L. SMITH,
PROBATION OFFICER.

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REPORT OF MARGARET H. DENNEHY, PROBATION OFFICER FOR WOMEN AND GIRLS OF THE CITY OF PROVIDENCE.

During the year 1906, one hundred and eighty-two women and girls were committed to the care of the probation officer for women. Of this number, thirty-eight were juvenile and forty-four were between sixteen and twenty-one years of age.

Two juveniles and three adults, who had violated the conditions of their probation, were surrendered to the court and sentenced. Two immigrant girls were sent to their home in Great Britain. One girl married the man who wronged her and he has made a home for his wife and the child. Twenty-nine juveniles with fairly good homes were allowed to return to their relatives. Those not attending school are working to help support the family.

Eight juveniles, who had unsatisfactory surroundings, were placed in private institutions in this city, New York State and Philadelphia, being accompanied to their destination by the probation officer for women. Ten girls, over sixteen years of age, were provided with situations as domestics in private families, receiving wages from two dollars to three dollars and fifty cents, per week. Great care is taken in investigating the homes where girls are placed.

Twenty-five adults, homeless or living under bad conditions, were admitted to private reformatory institutions. Nine girls, who had run away from their homes, were held until claimed by their parents.

Thirty-six women who came here from other states, were returned. Several of these women were in company of men who had criminal records.

The remaining sixty-seven adults report from time to time. Several are mothers of families and nearly all work in mills or laundries.

Fourteen old cases against juveniles and thirty-nine old cases against adult offenders were discontinued in the Sixth Dis-

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trict Court. Ninety-seven dollars were collected in small sums to pay costs.

There were thirty-three maternity cases temporarily cared for during the year, none of whom were sent to hospitals in other states where they had claims for support.

Your officer being the superintendent of the Providence Rescue Home and Mission is in a position to furnish a temporary home and shelter for many unfortunate girls who are placed in her charge by the Police Department without arraignment in the Court; many of them are witnesses in criminal cases. The Society for the Prevention of Cruelty to Children, the admitting physicians to the Providence Lying-In-Hospital and the Overseer of the Poor also send to her many unfortunate girls who are without homes, or have such homes as are rendered unfit for them by miserable and degraded parents.

Respectfully submitted,

MARGARET H. DENNEHY,

PROBATION OFFICER FOR WOMEN AND GIRLS.

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BUTLER HOSPITAL.

	Men.	*Women.*	*Total.*
Number of inmates January 1, 1906	74	89	163
Admitted during the year	54	50	104
Total under treatment during the year	128	139	267
Discharged during the year	54	43	97
Remaining January 1, 1907	74	96	170

Of the number discharged, nineteen had recovered, fifty-one were improved, and sixteen were unimproved; eleven had died.

STATISTICS OF STATE PATIENTS.

Remaining January 1, 1906, State Patients	20	
Remaining January 1, 1906, State Beneficiaries	28	48
Admitted during the year, State patients	5	
Admitted during the year, State beneficiaries	15	20
		68
Discharged during the year	13	
Died during the year	3	16
Remaining January 1, 1907		52

Divided as follows:—

22 State patients at $70.00 per quarter.
19 State beneficiaries at $25.00 per quarter.
11 State beneficiaries at $39.00 per quarter.

The total amount paid for the support of the State patients for the year ending December 31, 1906, was	$6,322.93
The total amount expended for State beneficiaries was	3,677.07
	$10,000 00

Of those discharged, three had recovered, seven were improved, and three were unimproved; three had died.

Respectfully submitted,

WALTER R. WIGHTMAN,

AGENT OF STATE CHARITIES AND CORRECTIONS.

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OFFICERS OF THE ORGANIZATION OF THE OVERSEERS OF THE POOR.

President, MATHEW J. CUMMINGS. *Vice President*, ADELBERT D. ROBERTS.
Secretary and Treasurer, THOMAS B. MAYMON.

Executive Committee.

CHARLES H. ALLEN. JOHN B. BROWN. JOHN BIGBEE.
L. H. PEABODY. JOHN H. BROWN.

Arbitration Committee.

EDMUND WALKER. GEORGE B. CARPENTER.
JOHN T. BARBER. CHARLES E. ANDREWS.
WALTER R. WIGHTMAN.

Legislative Committee.

MATHEW J. CUMMINGS. WM. M. PECKHAM. THOMAS B. MAYMON.

OVERSEERS OF THE POOR OF RHODE ISLAND WITH THEIR P. O. ADDRESSES.

Barrington	William S. Martin	Barrington Centre.
Bristol	Philip Brady	Bristol.
Burrillville	Gilbert S. Taft	Pascoag.
Central Falls	Charles E. Frost	Central Falls.
Charlestown	Elisha S. Card	Shannock.
Coventry.	Warren M. Greene.	Washington.
Cranston	John Bigbee.	Cranston Print Works.
Cumberland.	John T. Barber	Ashton.
East Greenwich.	Timothy Andrews	East Greenwich.
East Providence	Frank T. Calef, M. D.	East Providence.
Exeter	Herbert E. Knight	Exeter.
Foster	George P. Nichols	Foster Centre.
Glocester	Seth H. Steere.	Harmony.
Hopkinton	George B. Carpenter.	Ashaway.
Jamestown	Elijah Anthony	Jamestown.
Johnston	John Walsh	Thornton.
Lincoln.	Thomas B. Maymon	Lonsdale.
Little Compton	William H. Briggs	Little Compton.
Middletown	Joseph A. Peckham, Pres.	TownCouncil, Newport
Narragansett.	James F. Cross	Narragansett Pier.
Newport.	Lewis L. Simmons, Ch.	Newport.
New Shoreham	Charles Littlefield	Block Island.
North Kingstown	George C. Cranston	Lafayette.
North Providence	Joseph W. Mills	Geneva, Providence.
North Smithfield	John B. Brown.	Slatersville.
Pawtucket	William M. Peckham.	Pawtucket.
Providence	Matthew J. Cummings	Providence.
Portsmouth	John B. Cornell	Portsmouth.
Richmond	Rev. Warren Dawley	Kenyon.
Scituate	Fred S. Hill.	South Scituate.
Smithfield	Emor H. Mowry	Smithfield.
South Kingstown.	Edmund Walker.	Wakefield.
Tiverton.	A. Lincoln Hambly	Tiverton.
Warren	Charles H. Bliss	Warren.
Warwick	E. R. Shippee	Centreville.
West Greenwich.	George W. Fish	Nooseneck Hill.
Westerly	John B. Brown	Westerly.
Woonsocket	Adelbert D. Roberts	Woonsocket.

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APPENDIX.

ACTS AND RESOLVES OF THE GENERAL ASSEMBLY PASSED AT THE JANUARY SESSION, 1906, RELATING TO THE BOARD OF STATE CHARITIES AND CORRECTIONS ITS OFFICERS AND THE STATE INSTITUTIONS IN CRANSTON.

RESOLUTION appropriating the sum of $100,000 to be expended by the board of state charities and corrections for construction at the state institutions in the town of Cranston.

(No. 11. Passed April 20, 1906.)

Resolved, That the sum of $100,000 be and the same is hereby appropriated, out of any money in the treasury not otherwise appropriated, to be expended by the board of state charities and corrections for the construction at the state institutions in the town of Cranston as follows: At the state almshouse, the hospital for the insane, the girls' school, the boys' school: *Provided, however*, that only $40,000 of said sum be made available during the year 1906; and the state auditor is hereby directed to draw his orders upon the general treasurer for the same upon the receipt by him of vouchers properly authenticated.

RESOLUTION appropriating the sum of $2,100 for the use of the board of state charities and corrections in the purchase of land.

(No. 20. Passed April 20, 1906.)

Resolved, That the sum of twenty-one hundred dollars be and the same is hereby appropriated, from any money in the treasury not

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otherwise appropriated, to be expended by the board of state charities and corrections for the purchase of land adjacent to the lands occupied by the state institutions in Cranston which may be deemed advisible for said institutions that the state should own; and the state auditor is hereby directed to draw his order upon the general treasurer in payment for land so purchased: *Provided,* that before any payment is made as hereinbefore authorized, the title of any land purchased shall be examined by the attorney-general or his assistant and the deed thereof approved in writing by said officer or his assistant, as the case may be, both as to title of the land and as to the form of the deed; *and provided, further,* that no part of said sum of twenty-one hundred dollars shall be available before January 1, 1907.

CHAPTER 1360.

AN ACT IN AMENDMENT OF CHAPTER 664 OF THE PUBLIC LAWS PASSED AT THE JANUARY SESSION, 1889, BEING "AN ACT RELATING TO JUVENILE OFFENDERS AND PROVIDING FOR THE APPOINTMENT OF PROBATION OFFICERS."

(Passed April 20, 1906.)

It is enacted by the General Assembly as follows:

SECTION 1. Section 5 of chapter 664 of the Public Laws, passed at the January session A. D, 1889, entitled "An act relating to juvenile offenders and providing for the appointment of probation officers," is hereby amended so as to read as follows:

"SEC. 5. The board of state charities and corrections may appoint a state probation officer who shall serve during the pleasure of said board, and who under the direction of said board shall have authority throughout the state to carry out the provision of this act. Such officer may, with the approval of said board, appoint assistants from time to time, of whom one at least shall be a woman, and such assistants shall have authority under the direction of the state probation officer to carry out the provisions of this act throughout the state, and may be removed at any time by the order of said officer subject to the approval of said board. All expenses incurred or authorized by the state probation officer in carrying out the provisions of this act shall be paid from the appropriations for the board of state charities and corrections, but must first be approved by said board, and no assistant

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shall incur any expense in the performance of his duties unless the same shall have been authorized by the state probation officer."

SEC. 2. Section 8 of said chapter 664 of the Public Laws is hereby repealed, and this act shall take effect on and after April 20, A. D. 1906.

CHAPTER 1367.

AN ACT IN RELATION TO THE STATE PROBATION OFFICER AND HIS CUSTODY OF FEMALES.

(Passed April 20, 1906.)

It is enacted by the General Assembly as follows:

SECTION 1. The state probation officer, in the case of any female committed to his custody either by the court or under the authority of section 2 of this act, may provide for the care and maintenance of such female, apart from her family, whenever in his opinion the moral improvement and welfare of such female will be promoted thereby, and such care and maintenance shall be for such period as said officer shall deem advisable and shall be paid for by the state at a rate of not exceeding two dollars per week for each female; *Provided*, that every female for whom such provision of care and maintenance is made shall at all times be under the control of said officer, and any such female who has been committed to his care by any court shall continue to be subject to the authority and direction of such court.

SEC. 2. The state probation officer may in his discretion, by written agreement with a parent or guardian, or with any other person or society having the custody of a female, take upon himself, in behalf of the state, the care and custody, for a period of not exceeding six months, of any female under the age of sixteen years: *Provided*, that any agreement he may make under the provision of this section shall not deprive him of the right of relinquishing at any time the care and custody of any child and of surrendering such child to the parent, guardian, person, or society by whom such child was committed to his care and custody. All agreements made under the authority of this section shall be in form approved by the board of state charities and corrections, and the state probation officer upon making any such agreement shall at once notify the superintendent of schools of the town or city where the parent, guardian, or custodian of the child covered by such agreement resides.

SEC. 3. The state probation officer shall file with the state auditor a quarterly report giving the names of the females provided by him

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with care and maintenance under the provisions of this act during the preceding quarter year, the courts committing them, the length of time in the next preceding quarter year each of such females shall have been so maintained, and the amount of expense incurred therefor, together with the names of the persons with whom the same shall have been incurred. These quarterly reports shall be filed between the first and fifteenth days of January, April, July, and October in each year. Upon the filing of any such report the state auditor shall draw his order or orders upon the general treasurer in favor of the state probation officer for the amounts shown by such report to have been incurred under the provisions of this act, and such orders shall be paid out of any moneys in the treasury not otherwise appropriated.

SEC. 4. This act shall take effect on and after April 20th, 1906, and all acts and parts of acts inconsistent herewith shall on and after that date stand repealed.

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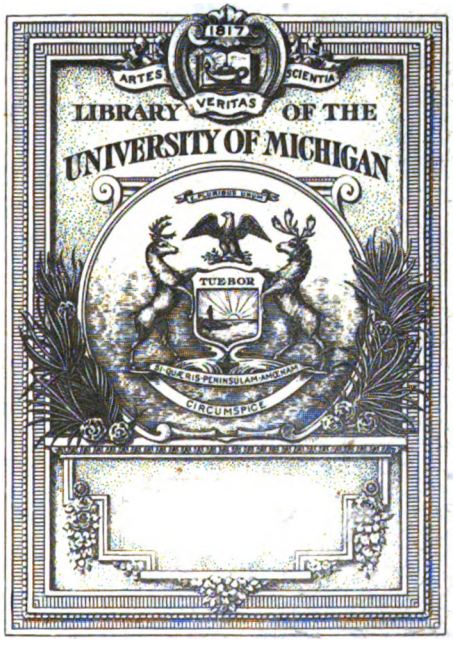

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